Information System for
Café Guru
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(Signature of student)

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Project Title: Information System for Café Guru

Chapter 1 Introduction

1.1 Introduction

This section will briefly give an overview of the project, what it is about and the minimum requirements.

1.2 The Problem

Café Guru is a chic contemporary Indian dining restaurant. With its modern setting and design it appeals to a variety of people and occasions.

Due to its great success many businesses and organisations or groups of people tend to use it for parties and special days out. To be guaranteed a place they often book their tables in advance.

Currently the process can only be done via the telephone, even though this works fantastically it is difficult to show customers food available on the menu. The new system to be implemented will address issues such as this and will allow customers to check menu items and pre-order the food when booking a table.

1.3 Proposed Solution

The proposed solution is a web interface booking system which will allow the customer to book a table using a graphical display of the restaurant. The display will change dynamically to show available tables on the customer's requirements. A web interface is need so that customer can access the system from any place, home or work.

The back end of the system will be a database to store all the information required for the system. Information such as the menu items will be retrieved to be displayed on the website for customers to view and when placing an order with a booking. The booking details will be saved back to the database for the manager to check at a later time. With all the information the manager will be able to see trends in popular menu items and busy business hours of each day. The pre-orders of food will allow the manager to order enough stock to cover the demands and needs of the restaurants. It will also allow the manager to produce the staff rotas to manage the bookings for the day.

Once a booking has been placed, an email confirmation will be send to the customer so that they have some way of knowing that the booking has actually been placed and received by the restaurant.

Apart for the features mentioned the proposed solution should also provide the customer with general information about the establishment such as where to find it, what is on the menu, how to get there, opening times and other information which maybe of interest to customers.

1.4 Aim

To produce an information system that will allow Cafe Guru to operate effectively and efficiently as a business and customer service provider.

1.5 Objectives

The objectives of the project are to:

- Analyse the information needs of the business.
- Produce an appropriate information system according to the business needs.
- Incorporate a database within the information system to store data such as the booking information and food menu.
- Incorporate a process which will allow customers to place a booking and pre-order their food.

1.6 Minimum Requirements

The minimum requirements are:

- A webpage which provides customers with overall information about the company.
    - What Food is served
    - Location
    - Opening Times
    - Contact Information
    - How to get there
- A system which allows customers to see which tables are available with the use of a graphical layout.
- A system which allows a customer to book a table via the system.
- A system which allows a customer to pre-order their food while booking a table.
- Confirm a booking by email confirmation.
- View of/Report of bookings made.
- Report trends in purchases and time & day bookings are made.
- Allow customers to cancel their booking.

1.7 Enhancements

The possible enhancements are:

- Allow the customers to login and change their details.
- Confirm cancellation of booking by email confirmation.
- Allow the manager to add/edit menu items on the system.
- Allow the manager to produce staff rotas.
- Allow the staff to login to view their shifts.

1.8 Deliverables

- Project Report
- Information System
- Non-technical User-Manual.

1.9 Schedule

A Gantt charts have been provided in Appendix B, outlining the project schedule. One grant chart shows the initial plan of the project and another has been corrected plan due to changes that were need during the course of the project.

Chapter 2 Background Research

2.1 Introduction

Before starting the project, initial research will be need to gain better knowledge into the problem area. This will require researching into methodologies that can be used for the project listing advantages and disadvantages of each. Technologies will also need to be research to understand how they work and could be applied to the project to produce the solution. The research will also aid the design of the system by highlight issues that should and should not be included in the solution to be implemented.

2.2 Background to Problem

Traditionally restaurants have taken booking for tables over the telephone. This method is still being used today. It is efficient and effective, as it gets the job of taking the bookings done.

With the increasing use of the internet and development of new technologies, many restaurateurs have taken advantage of this by providing their customer with other ways of booking a table. By creating a company website not only increases the company profile but it allows information to be distributed to customers about the restaurant. It also acts as a product to attract potential customers to attend the restaurant.

To keep up with other restaurant and possibly gain competitive advantage Café Guru has decided that they too should look the possibility of creating a system that would, not only give information about the company but also allow customers to book their tables online.

2.3 Methodology

Before starting the design and the implementation of the system, a crucial step would be to decide which software development approach to use. In this section we analyse different methodologies and choose the one most appropriate for this project.

2.3.1 The Waterfall Model

The waterfall model is also known as: ‘Conventional system analysis’, ‘traditional system analysis’ or ‘information system development life cycle’ [1]. The system development is split into a number of sequential stages, where the next stage can not be started until the previous stage is complete. The output from each stage becomes the input for the next stage. If we model the process by representing each stage with a box and an arrow to indicate output from one to another we would have a model

similar to the one shown in Figure 2.1 Appendix C. At the end of each stage, there is an opportunity to review progress before proceeding to the next stage.

The waterfall model works best when the requirements have been understood and there will be no further changes. In situations when it is difficult to determine the requirements or the system is likely to change radically, a different methodology may be better suited.

2.3.2 Spiral Model

The Spiral model differs from the waterfall model in that it introduces an iterative approach to system development [6]. Unlike the waterfall model where once a stage is complete it can not be revisited, the spiral model will repeat each stage several time, each time improving to clarify the requirements, issues and solutions.

The model starts from the centre of the spiral working outwards. Each loop of the spiral represents a development process. The model is also split into four quadrants as indicated in **Figure 2.2 Appendix C**.

2.3.3 Rapid Application Development (RAD)

"*Rapid Application Development (RAD) has evolved as an important theme in information system development over the last few years*" [1]. This methodology was developed in the 1970s due to problems with traditional methods like the waterfall model as they took too long to develop a system. This method was the solution for fast moving businesses and technology as it would allow them to develop a system quickly even thought it meant that the system implementation may not be perfect. In the same way, a business opportunity may arise which has a fixed and limited life and which, if missed, will render the development a waste of time [6]. Advantages of RAD include:

- Speed of development
- Increased Quality
- Some systems also deliver advantages of interoperability, extensibility, and portability [18].

Disadvantages of RAD:

- Reduced Scalability
- Due to rapid nature of this process many features be missed out

2.3.4 SSADM

The structured systems analysis and design method (SSADM) is an example of a structured method [6]. The methodology provides project development staff with very detailed rules and guidelines to

work towards [1]. This method is one which is based from the waterfall model mentioned earlier. It consists of seven stages set into five main areas:

- Feasibility Study
    - Feasibility
- Requirement Analysis
    - Investigation of current environment
    - Business System options
- Requirement Specification
    - Definition of requirements
- Logical System Specification
    - Technical system options
    - Logical Design
- Physical Design
    - Physical Design

2.3.5 Prototyping

Within prototyping the software developers build an initial system from a rough specification of the system requirements and present it to the user [1]. This method allows the end user to be involved in the design of the system. It helps the developer to build a system which the end user will be happy with as they can record comments the user made while using the prototype. In analysis and design there are two distinctly different approaches to prototyping, and it is important that the analysts decide in advance which of these to use [11]. The two are Throwaway prototyping or Evolutionary prototyping. A Throwaway prototype is a prototype which tests out ideas that the developer may have and after information has been collected using them they will be discarded. Evolutionary, on the other hand, is a prototype which will be presented to the user and form the feedback; parts of the prototype will be developed further or refined to form the end system.

2.3.6 Choice of Methodology

The Waterfall model has been chosen as the methodology for this project because it is the methodology that best suits the problem. The Spiral model is not appropriate for this project because there is no clear end point to the implementation of the system so may lead to unnecessary work being carried out. RAD is not appropriate for this project because it is intended for implementing systems rapidly and so can lead to errors and a system which functions but not perfectly. Prototyping is not appropriate for this project because it would involve the end user to give up their time to review and feedback on the system. SSADM, even thought is very similar to the waterfall model, has not been

chosen as the methodology does not go beyond the physical design stage unlike waterfall which included several stages after the design. Using the waterfall model is also more advantageous than others as the developer has previous experience using this methodology.

2.4 Tools

The developer has anticipated that the project will need several tools in order to deliver the system needed. Tools such as:

- Database Management System to store the data the system will use.
- Server side scripting languages so that the system can retrieve data stored in the database.
- Client side scripting for the website end of the system.
- A server for the system.

2.4.1 Database Management System

The system will involve the use of a lot of information, some which will be needed several times so there is a need to use a database. This will allow data to be saved from input to the system and retrieved to be used by the system.

Microsoft Access

Microsoft Access a common database management system, this maybe because it is part of the Microsoft Office Suite used by virtually everyone, in schools, homes and businesses. Even thought its not free as it's a product in the Office suite most people do have it on their machine. Another reason for this popularity could be that fact with its GUIs and menus almost anyone could use it without learning Visual Basic or SQL language. Apart from using Access as the DBMS is can be used as the 'front end' to other databases such as MySQL, MS SQL server, this would allow using the forms, reports, queries and VB code as an interface to the information held by the other database [21].

MS SQL Server

Produced by Microsoft, SQL server works only in the windows platform environment. SQL Server is commonly used by businesses for small- to medium-sized databases, but the past five years have seen greater adoption of the product for larger enterprise databases [22]. Due to the fact that SQL server is not open source its major disadvantage is that it is expensive to purchase.

MySQL

MySQL is free open source software, and very popular in web application as a database component. It is compatible with many operating systems including Windows, Linux and Mac and can be used with both Apache and Windows web servers. It can also handle large amounts of data and provides security through user authorisation and access privileges. Its popularity as a web application is closely

tied to the popularity of PHP, which is often combined with MySQL and nicknamed the *Dynamic Duo* [23].

PostgreSQL

PostgreSQL is an open source, platform independent database management system similar to MySQL but provides more features such as triggers. If all the features were implemented PostgreSQL performance is effected, and MySQL would run faster.

Chosen Database Management System

Microsoft SQL Server has been discarded due to its high purchase cost and the end user is not willing to spend that sort of money on the project. PostgreSQL includes features which will not be needed for this type of project therefore MySQL will be the better option since it is similar. From the listed database management system the end user has only previous knowledge with Access therefore would feel more confident using the system, and would be the obvious choice. This is why Access has been shown as the database for the system. Using Access will also allow an easy interface to be created for the end user.

2.4.2 Server Side Scripting Language

There are a number of server side scripting languages which will allow me to retrieve and update data stored in the database. The most commonly used languages are: ASP, ColdFusion, JSP, PHP and Perl [14, 15].

ASP

ASP (Active Server Pages) was produced by Microsoft. ASPs are server-generated pages which can call other programs to do things like access databases, serve different pages to different browsers - basically, anything we used to do with CGI [16]. Coding ASP can be done in any language but most commonly VBScript as the syntax is very similar to Visual Basics so can be easily learnt if not already known. Other language could be JScript (JavaScript). This is simply because those are the languages which Microsoft pushes as being best suited to ASP scripting [4]. ASPs can also take advantage of COM and DCOM (Component Object Model and Distributed Component Object Model) objects with minimum effort [16]. ASP works with Microsoft's web server called IIS (Internet information server) but third party software available makes it possible to use ASP on non-IIS web servers such as **ChiliSoft** and **Halcyon Software's iASP** [15]. A drawback to using ASP would be that it is not free and would need to be purchased.

ColdFusion

Originally created by Allaire in 1995, and recently bought by Macromedia, ColdFusion was designed to be different [19]. "*Unlike other tools, ColdFusion wasn't patched together out of existing technologies. It was designed from the ground up to be a Web application platform" [15].* It uses a tag-based syntax similar to html. This makes it a lot easier to use and learn. ColdFusion Server Professional 5.0 costs $1,295 [15], as it is a commercial server platform, but can be run on any platform.

JSP

Java Server Pages (JSP) was developed by Sun as a response to Microsoft's ASP. "*Sun being popular for the java programming language, developed JSP so that it unleashes the awesome power of the Java language" [15].* Portability, multithreading, extensive class libraries, object-oriented coding are only some of the advantage JSP bring due to the power of Java. The major drawback to JSP is that Java is not easy to learn [19], mainly as java is a full-fledge programming language capable of writing large complex programs.

PHP

PHP is a development from a project called Personal Home Page Tools which was started by Rasmus Lerdort in 1994 [4]. It actually stands for PHP Hypertext Processor. PHP is one of the most popular and favoured scripting language available mainly because it is free. For purposes of Web development, PHP can do almost everything that Perl can, and usually does it quicker and easier [19]. Other advantages include:

- Open Source Software - The very philosophy of open source is itself one of the driving reasons behind the popularity of PHP [15].
- It works well with any web server.
- It can use many standard network protocols such as HTTP, POP3, and SMTP.
- It can work with several database systems.

Perl

Perl (Practical Extraction and Report Languages) gives programmers freedom to develop their own solution in their own way [4]. Perl was not created as a server side web development language but as a scripting language. It started to be used for this purpose due to the way that Perl handles pieces of text from a number of sources to combine them to form complete documents. Perl is open source software so is freely available on the Internet, many web host support Perl and due to the age of Perl there are less chances that you will discover a bug within it. Perl was not created for web development it has some drawback such as it has not been optimised for speed, scalability or ease of use in the web

development environment. Even with these drawbacks many developers may use Perl, as not being just a web development language means that it will allow you to do a lot more if needed.

Choice of Server Side Scripting Languages

PHP has been chosen as the server side scripting language. ColdFusion was discarded due to its purchase costs. ASP was discarded due to the fact would only run on IIS restricting the choice of web server. JSP was discarded as it was more unnecessarily complex then PHP. Perl was discarded because PHP can do everything Perl can do but quicker and easier. PHP advantages also include the fact it is free, it's flexible and fast. PHP is also fairly easy to learn offers an advantage to the developer but also the end user as if changes were need they could be done by the end user with relatively little knowledge into PHP.

2.4.3. Markup Languages and Cascading Style Sheets

HTML

Hypertext Markup Language or HTML for short is the standard markup language used in webpage creation. Using a variety of tags and attributes it describing the format of documents which allow them to be viewed on a computer screen [4].

XHTML

Extensible Hypertext Markup Language or XHTML for short is the same as HTML in terms of capabilities but offers a stricter, more verbose syntax. XHTML is an application of XML and can be seen as a merge of XML and HTML [4].

Cascading Style Sheets (CSS)

Cascading Style Sheets (**CSS**) is a stylesheet language used to describe the presentation of a document written in a markup language. It allows both the authors and readers of webpages to define colours, fonts, layout, and other aspects of document presentation. Its main purpose was the separation of the document content from the document presentation. CSS are applicable to both XHTML and XML data files, "they are lightweight and work well" [4].

2.4.4 Server

Internet Information Services (IIS)

Windows based web server produced by Microsoft. The server is inbuilt into most operating systems which Microsoft produce and is updated each time a new operating system is to be released. Currently Windows XP Professional comes with IIS 5.1, Windows 2003 server with IIS 6.0 but the most recent version IIS 7.0 will be released with Windows Vista [25]. As the web server is distributed with

operating systems there are greater co-operation with host allowing easier management and control of standard tools and utilities that the OS may have [19]. The major drawback to this web server would be its security problem as has been prone to attach from major viruses, such so that the Garner research group are recommending to enterprises using this web server to switch to alternatives which offer better security [20].

Apache Server

Created by the Apache Software Foundation, the Apache HTTP server is the most popular web server to be used [37]. It also played a major part in the growth of the World Wide Web. It is open-source software so is freely available to be used on both UNIX and Windows platforms.

Chosen Web server

Apache has been chosen as the web server as it is the most popular web server out of the two. It will run on any platform. IIS web server does not come with Windows XP Home edition only Professional so the OS would need to be upgraded occurring extra costs.

2.5 Alternative Systems

Research into current systems will be carried out to see what products are available on the market which potentially could have been used by the end user.

2.5.1 Resturantdiary

www.restaurantdiary.com [20] is a company which provides restaurants with systems which manage their bookings. "*Restaurantdiary.com was developed out of a realisation that a web-based software solution could radically alter the way that restaurants use the Internet to manage bookings and customers"* [20]. Its main concept is storing the restaurants diary online so that it can be accessed by staff, customers and even partners instead of the traditional paper-based diary. Restaurantdiary also do a service called RdExpress which is their new simplified internet-based reservations and table management system for smart restaurateurs on a budget [20].

Advantages include:

- Automatic instant bookings from corporate web site
- All bookings are entered real time in your own diary, whether direct from the web or by input from on site staff in your restaurant - there is no chance of double bookings.
- Multi-currency and multi-language.
- Ability to nominate "joined tables" so larger party bookings are automatically allocated to those tables.

- Ability to print out all bookings for a day or a definable period of time in order of time, name or by table
- Full editing facilities on the diary page, i.e. change table number, covers, time of booking without having to delete and re-input. Drag and drop bookings…

The major drawback to such a system would be the cost. Both types of the products offered have an annual contract where payment is taken each month. Training for the system either in person or via web meeting is an additional charge just like setup fees. The cost would be as follows:

RDExpress				
Any capacity (limited to 10 users)	£45 per month			
Initiation Fee / Self Install	£25			
Training -(minimum 4 hours - plus normal expenses)	£35 per hour			
RestaurantDiary				
Capacity covers	**50**	**51-100**	**101-200**	**200+**
System (per month)	£50	£80	£175	£225
Installation and Setup	£100	£195	£350	£395
Training	£350 per day			
Optional Extras	£295			

Pricing Figures taken from [20] and displayed in table.

Café Guru is a small independent restaurant which will not be able to spend such money on a system.

2.5.2 OpenTable.com

OpenTable [36] is a company which offers restaurants a computerised reservation and guest management system to replace the standard paper and pen method. They aim their product to independent restaurants, restaurant groups as well as resorts and hotels. They provide software as well as hardware such as touch-screen monitors. The software is mainly for the restaurant internal use but can be linked to the web to take online booking via the restaurants own website.

Advantage of this system would be:

- View reservations (colour coordinated)
- Build a customer database
- Change or cancel reservations
- Take reservations at any time using the web
- A floor view of the restaurant to streamline table management
- Customised managerial reports

The main disadvantage to this system would be the cost. Prices of a system are not listed on the website as OpenTable prefer you to contact them for a quotation. OpenTable was contacted view email to obtain a quota for a system which could be used for Café Guru but no reply was received. Because the system is tailored to the restaurant and OpenTable are going to be providing the hardware as well as the software, the cost of the system is expected to be high. Apart from the cost, the online reservation system is only a form based system where as the intended system to be created for Café Guru will include a graphical display to show which tables are available.

2.6 Current Systems

There are many restaurants which have actually implemented an online table booking option for their customers to use. Some of the results can be found below:

2.6.1 LondonEats

This website does not cater for just one restaurant but if fact many restaurants. The main purpose of this website is to inform customers of London restaurants by listing reviews and ratings of each one. It provides the customer with all the information they need to book such as online bookings and telephone numbers but also how to get there by listing the nearest tube stations and address of the restaurant including map.

Looking at the online booking process further, it was very easy and clear to use. With three simple steps to actually place the booking. The booking is placed by using a form which initially takes your preferences for your chosen restaurant; see Figure 2.3 Appendix C. From this information the system will search for availability for booking and return the possible booking times, see Figure 2.4 Appendix C. Their method to show availability is using a green highlighted box for possible times and a greyed out box with a diagonal line to show unavailable time slots. After a time is selected the last step is to enter your details for the booking, see Figure 2.5 Appendix C**.**

Londoneats.com is not the only website to use this type of booking system. Sugervine.com is similar to londoneats.com but on a larger scale as it cover areas all over the United Kingdom. It offers the same type of services to customer finding restaurants in their area.

2.6.2 Café Quebec and The Thai House Restaurant

Both of these websites [33] & [34] have taken a far easier approach to online bookings. Both have constructed a very simple form to gather the customer's information and requirements. On completion

the information is send back to the restaurant to make the booking request. By doing it this way the restaurant still has to organise the times and check availability whereas the system used by Londoneats and Sugervine checks the availability before the customer details are taken and processed.

2.7 Theatre Ticket Booking Systems

Having searched restaurants which have online bookings systems, none where found which have a graphical display. So to get an insight into graphical displays, theatre seat bookings systems will be used as customers are provided with a layout of the hall to see which seat they are buying a ticket for. There are some theatres which only provide the graphical layout as an image but still require the customer to ring up and book the tickets. A graphical display is only being used as a tool to show where the customer will actually be seated from the position of the stage. Although there are some other theatres which make better use of the graphical display, two of which are described in more below:

2.7.1 The Grand

The Grand [32] is a theatre and opera house based in Leeds. Once preferences are collected before the tickets are booked the customer is presented with a webpage which includes a graphical display of the theatre.

The seat layout changes once the user selects another seating area. If the user moves the mouse onto a box the selection box shows information such as availability, seat no and cost. The attributes box is used to show information such as restricted view due to a pillar, see Figure 2.6 Appendix C. The user selects seats and they are booked directly within a given time period.

2.7.2 Sheffield Theatres

Sheffield Theatres [35] is a website for three main theatres in Sheffield. It allows customers to view all shows to be performed and book tickets for any venue from the website. The graphical display used is slightly different from the one used by The Grand where its shows the full theatre at once, the seats are not individually shown but the rows are marked. The user will then select a price zone and enter the number of seats for the system to search for a match. The user will then be shown where the seat will be by using a seat icon placed at the position of the seat on the graphical display. The seats shown are only held for a limited time before they can be booked by someone else, this time is shown a long with the step number the user is currently one on the left hand side of the page, see Figure 2.7 & 2.8 Appendix C

2.8 Usability

*"Usability is a **quality attribute** that assesses how easy user interfaces are to use.*" [24]. The word "usability" also refers to methods for improving ease-of-use during the design process [24]. Usability is defined by the following five components [24]:

- **Learnability:** the user can rapidly start getting work done.
- **Efficiency:** once the user has learned the system, a high level of productivity is possible.
- **Memorability:** a casual user should be able to return to the system without having to learn everything all over again.
- **Errors:** few errors should be made, easy recovering from errors.
- **Satisfaction:** users are subjectively satisfied, they like the system.

Usability is very important when it comes to designing new systems, as a system which is hard to use, would put off people using it and possibly stop using it if they have the option. This would just lead to waste of resources.

2.8.1 Nielson's Usability Principles

Jakob Nielson [31] founded discount usability engineering including heuristic evaluation, which is a tool that can be used to evaluate user interface design. He set out ten key principles that should be used when evaluating, such as:

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Help users recognise, diagnose, and recover from errors
6. Error prevention
7. Recognition rather then recall
8. Flexibility and efficiency of use
9. Aesthetic and minimalist design
10. Help and Documentation.

2.9 Accessibility

Accessibility is just as important as usability. *"Web accessibility means that people with disabilities can use the web."* [28]. Web accessibility covers a number of disabilities which all affect access to the web such as visual, auditory, physical, speech, cognitive and finally neurological disabilities. Although it is mainly to help people with disabilities is can also help other such as older people, which may experience problems due to their old age. Web accessibility can be beneficial to us all, as

it encourages software and websites to be designed so that they are flexible providing assistance to people without a disability in certain situation whether it is just having a slow internet connection or having a “temporary disability” such as a broken arm.

2.10 Security

Security is an important issue which will need to be carefully considered when designing and implementing the system, so that data used on the system is not viewed by unauthorised people. One method would be to include a Secure Socket Layer (SSL). This encrypts data so that is can be sent over the internet safely to its destination. This is achieved by using public and private keys which creating a secure connection between the client and server for the secure transfer. An alternative to SSL this would be Secure HTTP (S-HTTP), this securely transmits messages individual.

Verisign [27] suggest that you only need SSL under the following conditions:

- If you have an online store or accept online orders and credit cards.
- If your business partners log in to confidential information on an extranet.
- If you have offices that share confidential information over an intranet.
- If you process sensitive data such as address, birth date, license, or ID numbers.
- If you need to comply with privacy and security requirements.
- If you value privacy and expect others to trust you.

Other security feature such as username and password entry to areas on the website may be needed. This will authenticate the user and stop unauthorised entry and data capture from the system.

2.11 Summary

The background research allows knowledge and understanding to be gained of methodologies, tools and issues which will allow effect and require important choices to be made for the project. The choices made need to be suitable to produce the solution needed for the problem.

Chapter 3: System Analysis

3.1 Introduction

System Analysis is an important stage in the waterfall model. *"Analysis of the current system is carried out in detail to determine the requirements of the new system. The phase should result in a detailed description of the system required by the clients."* [2]. Requirement gathering techniques will be used to collect information about the current system to perform a feasibility study to determine whether the new system is feasible.

3.2 Requirement Gathering Techniques

Gathering the requirements will be done using the five main fact finding techniques used by analysts to investigate requirements. *These techniques are sometimes referred to as "SQIRO – Sampling, Questionnaires, Interviewing, Reading (or Research) and Observation."* [5]. Each technique will be investigated and applied if relevant to the project.

3.2.1 Sampling

This technique involves investigating the documents used by business. Examples of the documents may include:

- Company reports
- Organisation charts
- Policy manuals
- Job descriptions
- Reports and
- Documents of existing systems.

The documents are used to determine the flow of information within the business and input/outputs of existing systems. [11] suggest that using this technique "*is particularly powerful when used in combination with one or more of the other techniques*".

3.2.2 Questionnaire

A technique which is *"often used when there is a large number of people from whom information and opinions are needed.*" [7]. The technique involves a series of written questions designed to draw information from the person. Questions can have limited responses often known as closed-ended questions. Questions which allow the person to write freely are open-ended and can often lead to a wide range of responses which may be of no use.

3.2.3 Interview

"*Interviewing is probably the most widely used fact finding technique*"[5]. It is usually between the analyst and the end user but occasionally can be done in group to save time and money. The analyst

will ask the user questions to gain information to be able to build up a picture of the current system and requirements for the new system. The structure of the interview may vary, [5] suggests that "*some interview are planned with a fixed set of questions that the interviewer works through, while others are designed to cover certain topics but will be open-ended enough to allow the interviewer to pursue interesting facts as they emerge*." The interview also allows the analyst to collect any documents that may be used by the user in his/her work.

3.2.4 Research

This technique is mainly used by analyst to gain knowledge into the organisation and its business objectives. [5] describes "*an outside consultant, first task is to try to gain understanding of the organisation*." To gain the information needed about the company the analyst can use a verity of sources such as:

- Company reports
- Organisation charts
- Policy manuals
- Job descriptions
- Reports and
- Documents of existing system.

3.2.5 Observation

"*Watching people carrying out their work in a natural setting can provide the analyst with a better understanding of the job then interviews*"[5]. This technique allows the analyst to view the current system in action, getting a real view of potential problems with the current system. The information used by the user within their job and how the system handles the information can be observed. It also allows the analyst to validate information which may have been collected about the system from users in interviews and questionnaires.

3.2.6 Chosen Requirement Gathering Technique

For Café Guru, three of the five techniques would be used, as these seem to be the most relevant techniques to gather accurate concise requirements of the system. The three chosen techniques are Interview, Observation and Sampling. Questionnaire technique has been left out as it was inappropriate for the type of project and would have been difficult to conduct as Café Guru, do not currently hold a customer list from which people could be chosen to complete the questionnaire. Research was unnecessary as the understanding of the organisation achieved from research could be collected from techniques chosen so further research was not necessary. Conducting an interview would allow the manager of Café Guru to be interviewed to question him about the current system, problems, improvements and what he would like from the new system. Conducting the interview would allow sample documents to be collected. For this project the document collected was a food

menu so that name, description and price of the menu items are known. Observations were also carried out to see the current system in action. It revealed the information gathered in order to book a table such as customer name, preferred time and number of people.

Current System

The system currently in place at Café Guru for taking bookings is via telephone, where the owner himself takes all the calls using his mobile phone, noting down the details of the booking in a dairy.

Even thought this method of taking bookings works effectively and is very popular with restaurant establishments due to the ease and speed of the process. It does have its drawbacks. The system requires the manager to have the diary to hand each time a call for a booking is made, it requires correct input into the diary and there is a possibility that if the diary is misplaced or lost all the booking details will be lost.

New customers often wish to see which items of food are available on the menu before deciding to book or attending the restaurant. At present the user has no method of showing the menu to its customer apart from the printed menus at the restaurant itself. It is one area which the owner would like to address in the attempt to attract more customers increasing its revenue.

3.3 Feasibility Study

Before gathering user requirements and designing a new system, is it important to check that the proposed solution can be produced and that it is practical for the business. It can be described as "*An investigation must be carried into whether it is feasible to carry out the project given the available organisational resources*." [2]. [7] describe that the feasibility study is carried out by organisations in its own way but most include three sections such as Technical feasibility, Economical feasibility and Organizational feasibility.

3.3.1 Technical Feasibility

[7] suggest that it is like a technical risk analysis. It is important that the technologies chosen meet existing requirements of the users and any restrictions to development are considered before any final technical decisions are made.

The main issues that the technical feasibility addresses have been covered in Chapter 2- Background Research. The proposed solution for Café Guru meets the technical feasibility as the technologies proposed for the project such as Microsoft Access and PHP will be sufficient to cope with the amount of data that will be passing through the dynamic web pages. The specification of the machine to be used by Café Guru is sufficient enough to run the system and has already some of the technologies preinstalled such as Microsoft Access. Figure 3.1 below details the specification:

Hardware	
Processor Type	Intel Pentium 4
Processor Speed	1.8 GHz
RAM	512Mb
Hard drive	80GB
Software	
OS:	Windows XP SP2
Antivirus	Avast Antivirus
Additional software:	Microsoft Office Windows Media Player WinRAR Mozilla Firefox

Figure 3.1. Computer Specification

Security of the data for the system is a major concern, as the system will be passing data from web pages to the database there is a risk that data may be captured by unauthorised users. To address this potential problem and limit the risk of data capture the system will incorporate a login facility to authenticate the users of the system. This will be sufficient enough for the system as the proposed solution does not include any e-commerce element so no financial details such as credit card numbers will be passed between the web page and database. But if in future Café Guru decides to implement such a feature they would need to purchase a SSL certificate, which will encrypt data passing from the website, adding further restrictions to unauthorised data capture.

3.3.2 Economical Feasibility

This part of the feasibility study tries to ascertain if the proposed system is *"financially affordable and the expense justifiable"* [1]. It is important to check that the system benefits outweigh any cost involved to produce the system otherwise the system will not be worth perusing.

The proposed solution for Café Guru will not include any cost in relation to the development of the system. The technologies planned to be used have been chosen with cost in mind and have utilised software already purchased and used open-source software for the remaining components. Figure 3.2 outlines the cost and reasoning for each of the system components to be used for the system.

System Component	**Benefit & Purpose of Component**	**Acquisition Costs**	**Economical Feasible? Yes/No**

System Developer	Create the system	£0 (system to be developed free of charge)	Yes
Microsoft Access	Database to store website details	£0 (component comes part of Office package which its already installed)	Yes
PHP	Scripting Language	£0 (open-source software)	Yes
Apache	Web Server	£0 (open-source software)	Yes
Dreamweaver	Website Development Tool	£0 (already installed)	Yes
ODBC	Connectivity between database and website	£0 (component of Access)	Yes

Figure3.2 Summary of Economical feasibility

3.3.3 Organisational Feasibility

"This addresses the question of whether the envisaged impact on the organisation is appropriate" [2]. The proposed system must include the requirements of all stakeholders to minimise the negative organisational impact.

The proposed solution for Café Guru will affect the manager of the company and the customer of Café Guru as the main stakeholders of the system. The system will be built from scratch, addressing all needs of the stakeholders and designed around the requirements of the users. The impact on Café Guru should be positive as the system should increase revenue and possibly decrease the work of the manager or make it easier.

3.4 Requirement Analysis

Requirements of the system are statements which state what the system will do. Requirements can be either functional or non-functional. A functional requirement states what the system needs to have, whereas non-functional requirements are referring to the behaviour properties which the system must have such as performance or usability. The following two sections state the functional and non-functional requirements for Café Guru System.

3.4. 1 Functional

- Customer must be able to view menu items
- Customer must be able to book a table
- Customer must be able to cancel a booking
- System must have a website for customers

3.4.2 Non-functional

- System must be easy to use
- System must be in keeping with company image
- System must have professional look and feel to it

3.5 Summary

Using various techniques the system requirements have been collected. It was necessary to investigate whether the project was feasible before proceed any further with the project.

Chapter 4 – Design

4.1 Introduction

The proposed solution has two main parts which need to be designed and combined to form the end solution. The first part is the design of the web pages for the website. The second is the design of the database which will be used for the storage of information used on the website. Prior to the design of the website, other Indian restaurants will be researched as potential competitors of Café Guru, to gain knowledge into the positive and negative aspects of their websites. Research will inspire and influence the design of the Café Guru website.

4.2 Competitor Websites

The chosen restaurants are Aagrah, Akbar's located in Leeds and Anam's, Mumtaz in Bradford. All of the restaurants deal with Indian cuisine, and have been chosen as the most popular establishments similar to Café Guru. Each of these restaurants has a website, some of which are designed to deal with more than one branch. Figures 4.1 – 4.10 Appendix D supplement this section.

When comparing the websites a standard list of design features will be noted about each website along with any other aspects which make it stand out from the rest. The tables below records the results found from each website:

Aagrah	
Speed of Loading	On first load the images take some time to load.
Text Size & Font	Clear and Easy to read.
Online Bookings? Yes/No	No
Location with Directions Y/N	Address and Map included on page which links to Google Maps to show location of the restaurant.
Positive:	Slide show pictures of the restaurant.
Negative:	Too many pictures on one page.

Akbar's	
Speed of Loading	Pages load very quickly and smoothly but images on the gallery page are a little slow to load.
Text Size & Font	Main text size is very small when viewed in Firefox browser.

Online Bookings? Yes/No	No
Location with Directions Y/N	Location screen only holds an address. No Map or directions.
Positive:	Square centre box layout. Many pictures of restaurant which enlarge when clicked.
Negative:	Menu page is not broken down into sections, all items are shown on one page. Customer can jump to sections of the menu they require using the hyperlinks but will need to scroll back up to go to another section or find it themselves.

Anam's	
Speed of Loading	Slow, due to flash used.
Text Size & Font	Text is in readable font style but size is too small.
Online Bookings? Yes/No	Yes, but only using a web form to collect details from customer.
Location with Directions Y/N	No, 'Find us' page not very helpful as map is too zoomed out.
Positive:	Tour of the Restaurant allows the customer to see what the establishment is like before attending. Menu is split into section.
Negative:	Off putting music played while on site, option to mute the music didn't work. Too much Flash used, too many thing happening on the page at once which is distracting when trying to read text or find items on the page. Virtual Tour takes time to load. Prices of dishes are not given.

Mumtaz	
Speed of Loading	Slow, uses too much flash. Entering the

	actual site takes quite a while due to the flash video at the beginning.
Text Size & Font	Readable font style but rather small font size.
Online Bookings? Yes/No	Yes, but only using a web form to collect details from customer.
Location with Directions Y/N	No, has map showing location of restaurant but instructs customer to go to multimap.com to get directions.
Positive:	Main picture changes once clicked on thumbnail pictures.
Negative:	Flash, slows down each page. Prices of dishes are not given.

4.2.1 Summary of design ideas collected

From reviewing the websites, the main general layout of the website have almost been very similar where the design is to use a square section in the middle of the page instead of all the webpage. The reason for this design style could be the possibility that each page does not contain vast amount information or detail to fill a full page instead limiting to a section of the page is better. The Café Guru website could also incorporate this style of design into its website.

Both Anam's and Mumtaz websites use a lot of flash content. Flash does have advantages as it makes the website look a lot more interesting and professional but has many drawbacks. For example, pages take longer to load, and can limit the accessibility of users who do not use internet explorer as their browser. Users of Firefox will need additional plug-ins in order for the site to work. This may put some users off and frustrate others if they tried to install the plug-in and failed. There are two ways around the flash problem, one is to re-direct the user to a non-flash version of the website and the other would be not to use flash within the website. The Café Guru website will not include flash due to the drawback and if it was used a non-flash version of the site would also need to be developed within the time schedule.

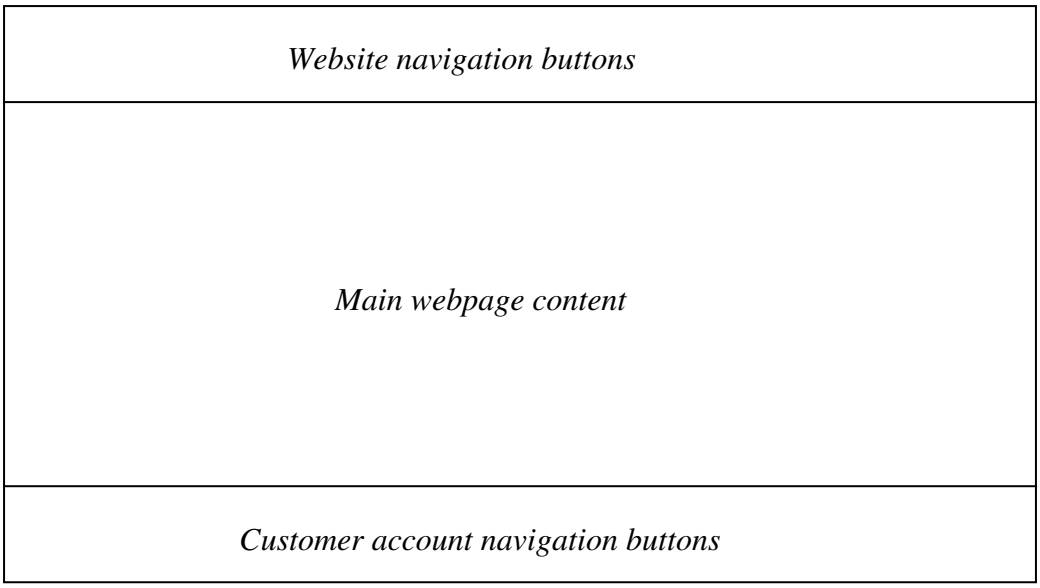
All of the websites include a 'location' or 'find us' web page which displays the address of the restaurant and some have included a map to help customers find where the restaurant is. This would also need to be included on the Café Guru website so that user can see where the restaurant is. The Mumtaz website instructs its users to go to multimap.com and enter their postcode to get directions to their restaurant. This is a very good idea which potentially could be used on the Café Guru website. A possible enhancement would be to incorporate a web service that will get the directions for the customers directly without the need to tell the users to go to an alternative website.

Like all of the websites reviewed, the Café Guru website will need to include pictures with clear navigation menu buttons. All text will need to be clear and easy to read by using a standard text font and size.

4.3 Website Design

From the non-functional requirements collected during the analysis stage, it was important that the layout of the website is clear, consistent and simple so that the website would be easy to use and look professional at the same time. The Café Guru website will be designed according to the user's requirements as well as taking into consideration the design aspects of websites reviewed earlier.

The main webpage design layout template will look like this:



This template will be applied to all the webpage's of the site, keeping the look and feel of the website consistent. It will allow easy navigation as the user will be able to move from one page to another by just one click. Only the middle of the webpage content will change depending on which page the user has selected. Some of the design layouts of content can be found in Appendix D.

4.3.1 Navigation Buttons

The navigation buttons which will appear at the top of all the webpage's will be as follows:

- ***Home Page***

  This link appears on most websites which returns the user back to the initial starting point of the website. This is usually the first page a user will see when going to the website.

- ***Menu***

  This page will show the user what food is served at Café Guru.

- ***Location***

  This page will show the user where the restaurant is by showing the address and a map.
- ***Pictures***

  Some pictures of the restaurant.
- ***Book***

  This page will allow the user to check availability of tables and place a booking.
- ***Opening Times***

  This page will display the opening times of the restaurant.
- ***Contact***

  This page will show the users how they can get in touch with Café Guru.

The bottom of the page will also include navigation buttons but these will be more tailored to the customer such as:

- ***Register***

  This will allow the customer to become a member of the Café Guru website and access restricted pages.
- ***Login***

  This page will allow the user to sign in with their login details.
- ***My Account***

  This is the main customer page, from which the customer should be able to see everything about them and make amendments.
- ***Logout***

  This link ends the customer's session and so will no longer be able to access restricted web pages.

4.4 Database Design

A database will be required as part of the overall solution to store and collect information for the website. The design of the database will include an entity relationship diagram, which is a graphical representation of the relationships between the entities in the database. This will be used to obtain an overall structure of the application. Normalisation will be carried out to ensure that the structure of the database is accurate by ensuring that data is not duplicated.

4.4.1 Entity Relationship Diagram

An entity relational diagram contains three key elements, entities, attributes and relationships. An entity is defined as something "in the real world with an independent existence" [9], this can be either something physical or conceptual. Whereas an attribute has "properties that describes the entities characteristics" [9], for example the properties for the entity Customer could be Name, Postcode and

Email. Finally, entities can be associated with each other via a certain type of relationship. These relationships are split into three types, one-to-one, one-to-many and many-to-many. A one-to-one relationship is when a single entity is related to another single entity, for example no customer has more than one login username and no username is used by more than one customer. A one-to-many relationship is when a single entity is related to many instances of another entity, for example a customer has many bookings, but a booking can only be made for one customer at a time. Finally, a many-to-many relationship is when many instances of an entity are related to many instances of another entity, for example a menu item can be ordered many times, and that order can be have many menu items. ER-diagram can be found in Appendix D.

4.4.2 Normalisation

A process of changing a database design to produce table schemes in normal form is called normalisation [38]. By using normalisation for the database design it will ensure data is not duplicated any where in the database. The database for Café Guru will be normalised to third normal form as this will be sufficient for the purpose of the database. The definitions of the first three normal forms taken from [38] are stated below.

First normal form (1NF) sets the very basic rules for an organised database:

- Eliminate duplicative columns from the same table.
- Create separate tables for each group of related data and identify each row with a unique column or set of columns (the primary key).

Second normal form (2NF) further addresses the concept of removing duplicative data:

- Meet all the requirements of the first normal form.
- Remove subsets of data that apply to multiple rows of a table and place them in separate tables.
- Create relationships between these new tables and their predecessors through the use of foreign keys.

Third normal form (3NF) goes one large step further:

- Meet all the requirements of the second normal form.
- Remove columns that are not dependent upon the primary key.

4.4. 3 Data Definition Tables of Normalised Database

Customers

Attribute Name	Data Type	Description

CustomerNo	Auto Number	Primary Key
Name	Text	Customers name
Email Address	Text	Customers Email Address
Contact No.	Text	Contact Telephone number

Login

Attribute Name	Data Type	Description
Username	Text	Primary Key
Password	Text	Password

Bookings

Attribute Name	Data Type	Description
BookingNo.	Auto Number	Primary Key.
Time	Text	Time of Booking
Date	Text	Date of booking
Number of People	Number	Number of people attending
CustomerNo.	Number	Foreign Key
OrderNo.	Number	Foreign Key

BookingTable

Attribute Name	Data Type	Description
BookingNo	Number	Composite key
TableNo	Number	Composite key

Table

Attribute Name	Data Type	Description
TableID	Auto Number	Primary Key
NoOfSeats	Number	Number of seat for table

Order

Attribute Name	Data Type	Description
OrderNo	Auto Number	Primary Key
Total	Currency	Order Total

OrderItem

Attribute Name	Data Type	Description
OrderNo	Number	Composite key
ItemID	Number	Composite key
Qty	Number	Quantity of item
Sub Total	Currency	Sub total for order

MenuItem

Attribute Name	Data Type	Description
ItemID	Auto Number	Primary Key
ItemName	Text	Name of item
ItemType	Text	Category type of item
Description	Text	Description of what item is
Price	Currency	Price of item

4.5 Login Security Design

To allow the website to be secure, it will be created to incorporate a login feature. Users will need to login before viewing their details and account information. To make it easier for the customer to remember their username, the customer email address will be used as their username to login. The customer will be asked to input a password of their choice when registering so that they have a better chance to remember it as well.

4.6 Summary

Designing the system before implementation is very important so that when developing the system the developer know how the system needs to be implemented. It will also minimise the chances that something will be left out. The developer can follow all the design plans for the website to create the desired look and feel that is required of the website and implement the database from the design so that it is efficient by eliminating any redundant data and ensure data dependency.

Chapter 5- Implementation

5.1 Introduction

This chapter will look at the implementation of the system, both the website and the database. Highlighting the main features of the system and how they have been implemented along with the programming involved.

5.2 Technology Setup

Before implementation could begin, the initial setup of a machine for development was required. This would simulate the setup requirements of the end users machine. Some of the applications required were already installed on the machine such as Microsoft Access and Macromedia Dreamweaver. PHP will need to be installed and configured to the Apache server also installed on the machine. To get the website to exchange data with the database Open DataBase Connectivity (ODBC) will be used. As the system will send out emails, the installation of an SMTP server may be required for the emailing function.

Initially the Apache webserver was downloaded from the internet and installed. Once this was working, PHP was downloaded and installed. Both Apache and PHP are open source and so are free to download from the internet. [39] was used to help configure the PHP to work with the Apache webserver. This involved changing the Apache configuration file *(httpd.conf).*

5.3 Macromedia Dreamweaver

For the website design, Macromedia Dreamweaver would be used. [10] say "*Macromedia Dreamweaver has long been the premier visual tool for website developers, allowing you to build great-looking Web pages and smoothly running web sites.*" Using Macromedia Dreamweaver would allow the layout and design of the web pages to be easily developed. Templates would provide a consistent look and feel to all web pages. Using Dreamweaver for the layout of web pages would also be a time effective way allowing for more time to be dedicated to PHP coding.

5.4 Website Implementation

The website will provide the front end of the systems. A combination of static web pages along with dynamic web pages would be used for the website. The dynamic pages will incorporate PHP code to exchange data with the database.

Template

To keep the look and feel consistent from one page to another, a template will be used and applied to all the web pages. The template will consist of the main layout of the website such as the navigation buttons and area for the actual main content of each page as shown in the design chapter.

Homepage Screen

This is the homepage which is the first page the customer will encounter when they access the website. It features the company logo as the main focus point of the page, with the links above and below for the customer to choose from.

Menu Screen

The menu screen consists of additional buttons positioned to construct a left hand side navigation bar, which allows the customer to choose which menu category they wish to view. The data is displayed to the right hand side of the page and includes a scroll feature to allow the customer to view all the items within the category. The data has been positioned and colour coordinated to make it easier to read.

Location Screen

As part of the location webpage, the customers will have the option to get directions to the restaurant by various means of transport such as bus or car. This feature links the customer to Transport Direct, a web service for directions. The customer will enter their details into the webpage and click on the 'Go' button. The postcode of the customer is used as the 'From' address, and the pre-programmed postcode of the restaurant is used for the 'To' address. The customer is taken to the Transport Direct website to select their mode of transport and view directions. Please see figures 5.3 & 5.4 Appendix E

Login

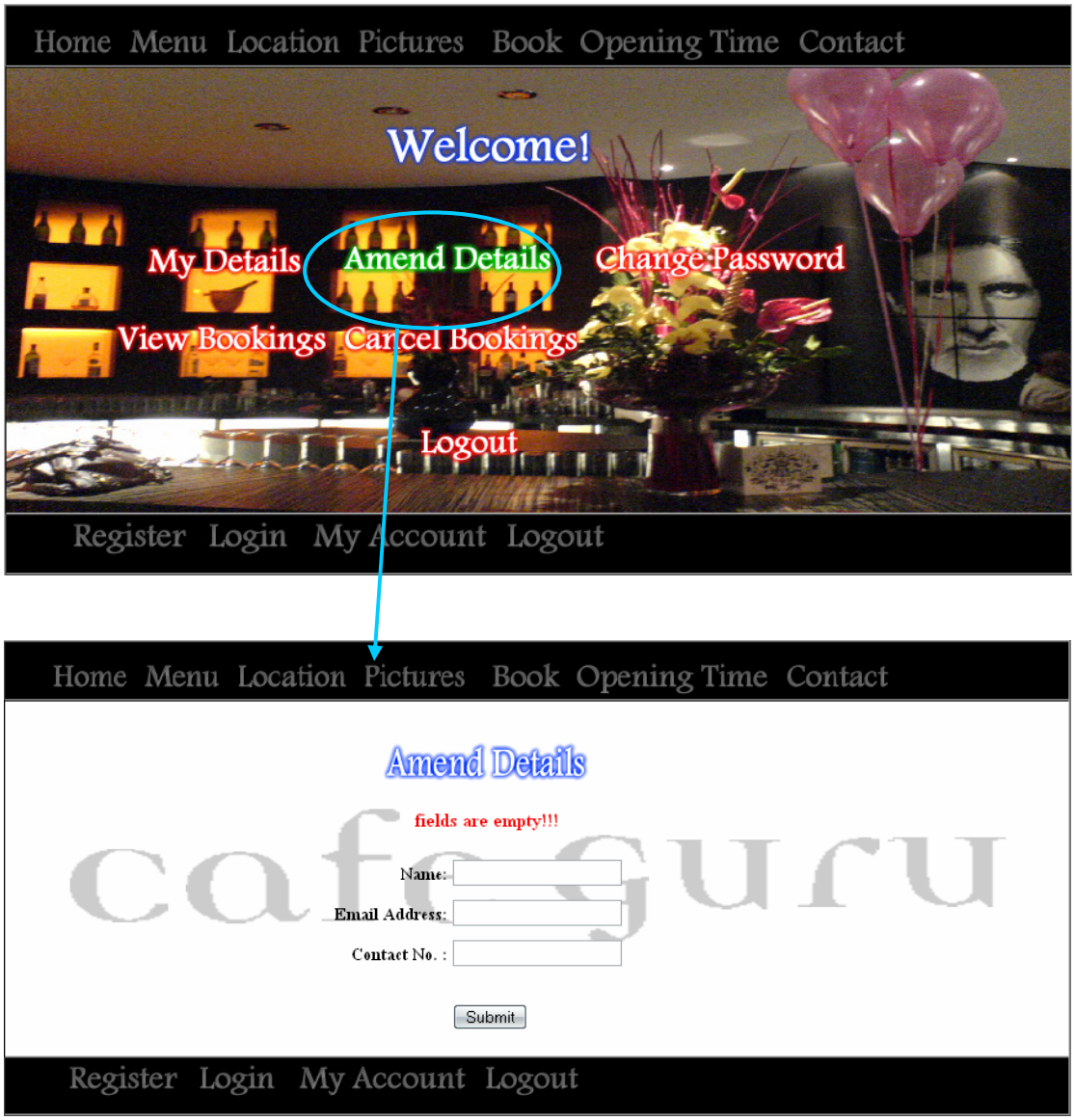
A login feature will be used to provide a secure website for customers. Web pages that display information specific to a customer, for example viewing or changing their details, will prompt the customer to login before any information is displayed. To implement the login feature, PHP coding will be used to check the user exists and if the entered details match those held in the database. To achieve this, a function called *sessions* will be needed.

Once a user has successfully logged in, a session variable is set. This is then used to verify the customer is logged in when they navigate to another webpage within the website. If this session variable is not set, the customer is prompted to login if the web page is restricted.

Similar to the login, a logout page will be needed to allow the user to logout of the system securely preventing others to their details. The PHP code to do this will reset the session variable that was set when logging into the system by destroying it. PHP code can be found in Appendix E.

My Account

This page displays the options relating to the customer's account. From here the customer will be able to view their details and bookings as well as making changes to their registered details. The following will explain what each option will allow the customer to do:



Amend Details

All of the web pages that take input from the user, for example the Amend Details page, to be stored in the database, make use of web forms. Each of the input boxes are assigned to a PHP variable so that it can be sent to the database by using the insert SQL query. Validation has been included to check that the user has filled in each of the boxes required on the form before submitting the data. An error message will appear on screen informing the user if a box has not been completed. Where all the information is completed successfully a message will also be displayed to confirm to the user that an update has taken place successfully.

Email Function

To be able to send the emails required by the system, a SMTP server was setup on the computer. This was done using free software available from the internet. To use the mail function, the PHP configurations required some amendments to instruct it to use the installed SMTP server.

The mail function was implemented to send confirmation to the user once they had registered and made a booking. The contact us page also allows the user to email the restaurant with any queries.

```
$body = "Thank you for registering with Cafe Guru. Your Username is: {$_POST['Email']}. Your Password is:
{$_POST['Password']}. ";
mail($Email, 'Thanks', $body, 'From: admin@cafeguru.com');
```

Booking a Table

The website allows the customer to book a table online. Instead of using a web form like alternative websites, the Café Guru website will incorporate a graphical floor plan to display the availability of the tables.

The floor layout was created using Visio software and imported into the website as an image. To be able to show which tables are available and those that are booked, PHP code was used to check if the table is booked at the time and date specified by the customer on the page. To show the availability the tables will change colour in order to make it clear to the customer which ones are available. Initially the colours chosen were red and green as these normally associate 'STOP' and 'GO' but this would restrict people with a disability such as colour blindness [29] so this was changed to use red as unavailable and yellow as available. To book a table the customer clicks on the table that they require using the mouse pointer. To prevent any customer from trying to book a table which is unavailable, only the available tables can be selected. See Figures 5.7 Appendix E.

Once the booking has been placed the customer will be given the option to place their food order in advance. This was achieved by creating something similar to a shopping cart like on all shopping websites. The order cart will allow the customer to select the food they wish to eat when they arrive for their booking. The menu items are imported from the database and listed on the page along with an '*Add*' option to add the item to the cart. The cart itself will also appear on the page, listing all the food selected and will give the user the '*Remove*' option to delete an item from the cart. See Figure 5.8 Appendix E.

Data Extraction

To display data on the website it was extracted from the database using SQL queries were used within PHP coding. The 'inner join' function of SQL was used where data extraction involved two or more tables within the database. For example, within the ViewMyBookings.php page an inner join was required to link the Customer table to the Login table to extract the customer number when only the username is known.

```
$query = odbc_exec($odbc, "(SELECT Customer.* FROM Login INNER JOIN Customer ON Login.Username =
Customer.Email WHERE ((Login.Username)='".$logusr."'))");
```

Other SQL queries such as 'Insert', 'Delete', 'Update' and 'Select' are also used. The insert query was used to write data into the database. For example when a customer registers their details are stored in the database. Update queries were used for pages such as Amend Details and Change Password, where changes would be made to records which already exist within the database. The delete function was necessary to allow customers to cancel their bookings. Finally the select query was the most used function, since it allowed data to be selected from the database. All of the coding can be viewed in Appendix E.

5.5 Database Implementation

The back-end to the system is a database, used to store the information for the system. Information stored within the database will be used by the front-end website. The database will also be the end-user side of the system.

Tables

The database tables were setup according to the design of the database in the pervious chapter. In total eight database tables were created *(Login, Customer, Booking, BookingTable, Table, Order, OrderItems, and MenuItems).* Relationship links between the tables were created using foreign keys.

The 'Text' data type was used for most of the fields, although 'Currency' had to be used for the prices within the MenuItems, OrderItems and Order tables. The 'Auto Number' data type was used for tables to create primary keys which became 'Number' data type if they were to be used as foreign keys in other tables. Figure 5.16 Appendix E.

Queries

Queries were required so that the end user could return information from the database. Queries would be used for the reports to be displayed to the user, the next section explains further about the reports.

The queries were generated using the design view available in Access. This allows tables for the query to be selected and the criteria to be specified. For example, to create the report to show all the booking details, the Booking, Customer and BookingTable tables would be selected.

Reports

Reports were implemented which gathered information from the user as part of the criteria for the query. For example the report generated to view booking for a given date. The user will need to input a date on the form before the report will be generated.

To obtain user input before generating the report the following criteria was used: See Figure 5.19 Appendix E.

[Forms]![frmReports]![ReportDate]

Reports would need to be produced to allow the end user to identify trends in bookings, orders and customer habits. This would allow the end user to gain valuable knowledge to run the business better. To produce the report, a query would be run to gather the information to be displayed on each report. Once the report has been produced the end user can view it on screen or can make a hardcopy by printing it out.

The system allows the end-user to create many different types of reports. Some of the reports are generated automatically based on the information held on the database but others require the users input. For example, a date range would need to be entered as the criteria to display certain information from the database within that date range. The table below summarises which reports were implemented and their purpose.

Report Name	Report Purpose
rptAllBookings	Reports all the bookings details in the database.
rptBookingDetailsDay	Report all the booking details for the date user enters.
rptBookingsDateRange	Reports all the booking details for a given date range entered by user.
rptBookingTimes	Reports the number of bookings made for each time slot.
rptOrderReport	Reports the order for a given booking number entered by the user.
rptRegularCustomers	Reports regular customers by checking number of bookings placed.

Forms

Since the database provides the end-user view of the system, a suitable interface would be required so that it could be used efficiently without prior knowledge of how to use Microsoft Access. Forms were used to create the user interface for the database so that data entry, data retrieval and general use of the database was straight forward. Navigation between the forms was achieved using a main menu page and macro buttons.

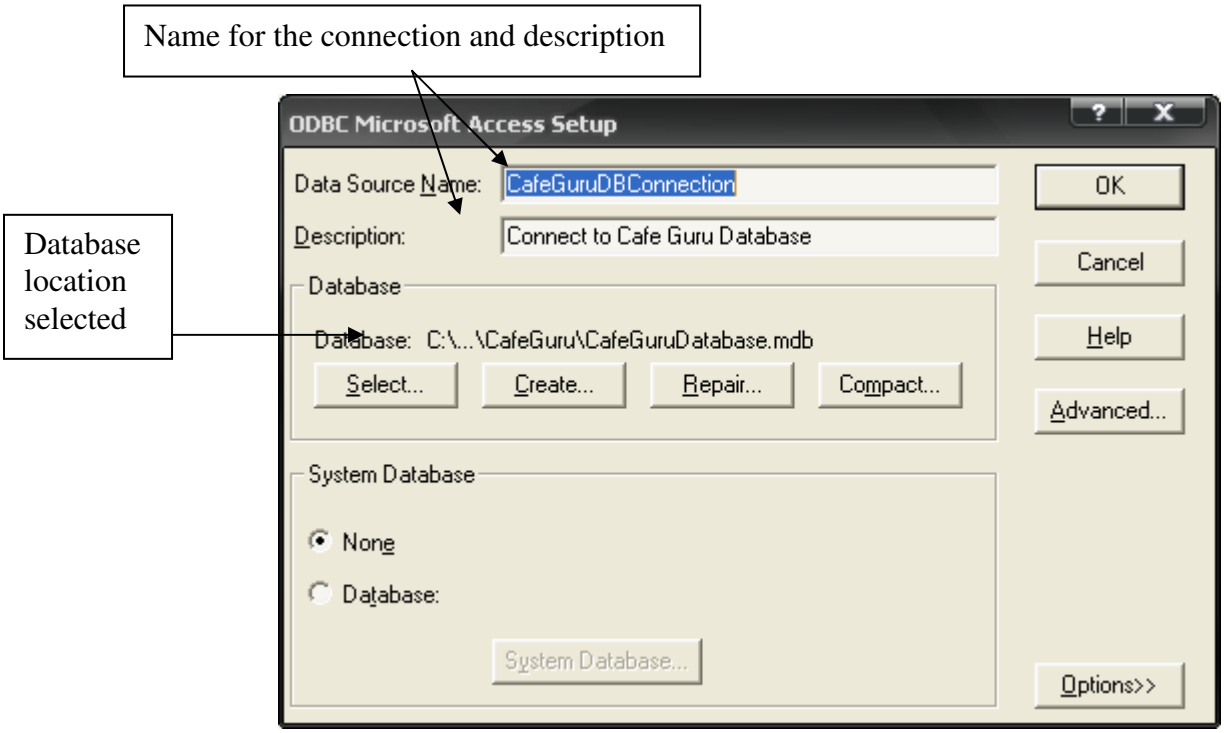
Forms would also allow information to be displayed so that the end-user could make changes. The following forms were created, Customer Details, Booking Details, Food Menus, Reports, Order Details and Tables. Each of the forms will show the user the information held within the database relevant to the form selected, for example the customer details form, will show all the information from the Customer and Login table for each customer. The user will also have several options available on the form to perform tasks such as adding new customer, deleting a customer, searching for a customer, amending details about a customer. These same options to add, delete, search and amend have been applied to the other forms, apart from the reports form where they were not necessary. Instead the report form has other options which are related to the reports the end-user will use.

The forms have been developed using a design that is in-keeping with the website. The background colour has been set to black as this colour sets the whole theme of the website. The company logo has been applied to the main page of the database similar to the homepage on the website.

5.6 Open DataBase Connectivity (ODBC)

The ODBC connection was important and was required to make and establish the basic connection between the Apache web server and the database. In order to configure the connection the following steps were taken:

- Start>Control Panels>Administrative Tools>ODBC.
- Select the 'System DSN' tab.
- Click 'Add' button to add new connection
- Select 'Driver do Microsoft Access (.mdb)'
- Click 'Finish'
- This will open the 'ODBC Microsoft Access setup' window, shown below



Without the connection, the data in the database could not be displayed on the website and information entered into the website could not be saved to the database. Therefore the connection was very important in order to produce the complete solution for the project.

5.7 Summary

Using the designs created earlier the system could be implemented. The website and database were created and finally joining together to form the overall system. The next year would be to test the system.

Chapter 6 – Testing

6.1 Introduction

Before the system can be pronounced finished, testing is required to ensure the system performs as intended. The systems needed to be compared to the functional and non-functional requirements set out in the analysis chapter. Although a wide variety of tests are available, the most appropriate testing methods for the system are 'unit', 'integration' and 'user acceptance' testing. The unit testing involves testing each component of the system to make sure it works as intended. Integration testing identifies defects in the interfaces and interaction between integrated components and finally, acceptance testing requires the end-user to test the system and provide feedback. To perform the testing a test plan was used. "*This will specify what is to be tested, how it is to be tested, the criteria by which it is possible decided whether a particular test has been passed or failed"* [5].

6.2 Unit Testing

The unit testing method involves examining the system implemented, by investigating the functions of the system to ensure that they operate as required. The unit testing carried out for this project incorporated different testing methods such as security, navigation, input validation and function testing. A high number of errors were discovered while implementing the system when error messages appeared on screen after coding system functions. Correcting the error at this time meant that the error could be located and fixed to the desired effect during development, increasing the probability of resolving the error. The test plan can be found in Appendix F.

6.3 Integration Testing

Integration testing follows unit testing, which involves testing the interfaces between programs in the same functional area. *"Sometimes called link, subsystem or level 1 testing, and it is an intermediate step between testing each program in isolation and testing the whole system"* [11].

To apply integration testing to the project, the integration between the database and the website needs to be tested. Information needs to read from the database but also inserted from the website to the database for the system to work as intended. To perform this task the system uses queries which need to be correctly executed to capture the information from the web form to insert it into the correct fields and tables within the database. Tests were carried out by using dummy data on each form to imitate the information a real user would enter and checking that the information appeared in the database. Problems were encounter where the query was executing before the form had been filled in and the user clicking the submit button, which caused blank records to be entered into the database. This problem was not related to the order in which the code was executed, since if the user filled in the form and clicked submit, it would still add a new record as intended. Resolving the problem required additional code to check the form had been filled in before the insert query would input the

data to the database as a new record. Reading the data from the database to display on the website performed as required without any errors.

6.4 User Acceptance Testing

User Acceptance testing requires evaluating the system against the original requirements involving the user. [11] suggest that the purpose of acceptance testing is to prove to the client that the solution produced meets the requirements agreed in the functional requirements specification. It also allows the system to be tested using real data rather than the test data used by the developer.

A meeting was arranged with the end user on 29th March 2007, so that the user could see the end solution and perform the user acceptance testing. Before the user tested the solution, the user was given a demonstration of the solution and shown how everything worked. After performing the testing the end user feedback that the system accepted all inputs entered successfully along with reporting errors where necessary. The results of the user acceptance were very similar to the testing completed by the developer, and showed that the system performed as intended and implemented correctly.

6.5 Summary

Testing was preformed while implementation of the system which meant that most of the errors were already corrected before actually entering the testing stage. This could be the reason why very few errors or omissions were revealed during unit testing. Integration testing was necessary to make sure that data is successfully exchanging between the database and the website, otherwise the system would not be able to function. The user acceptance testing was successful, showing that the system met all requirements of the end user.

Chapter 7 – Maintenance

7.1 Introduction

The maintenance stage is the final stage of the waterfall model methodology. It occurs after the system installation. It involves making modifications to the system or an individual component to alter attributes or improve performance. These modifications are needed due to changes in user requirements, correct errors and oversights previously undetected in the testing phases which have been spotted or to enhance the systems efficiency.

7.2 Database Archive

The developer noticed that with the anticipated number of booking the system would handle in a period of one day; week and even month the booking table holding the details about all booking would grow with increasing pace with new records. This could potentially cause some problems as the end user will find it hard to see upcoming bookings if all the bookings are viewed in one table. Even though this was not a requirement from the end user the developer thought it was best to implement a feature to over come this problem.

The solution implemented allowed the end user to archive the old information to another table so that when viewing the booking table it would only show current or up coming bookings. The implementation of this feature required two additional queries and another form to be added to the database system. The end user will be required to specify the dates between which bookings should be archived. A macro will run when the user submits the dates which will initially append all the records between the dates to the archive table, before deleting the records from the booking table.

By archiving the booking instead of deleting the records allows the end user to keep a record of bookings for the future. It will give the end user the possibilities of creating reports comparing number of bookings each month or even year.

The same feature will also need to be applied to the order table and order items table. To make it easier and efficient the idea was that the orders and order items should be automatically archived when a booking is archived, if it had an order. This way it would cut down on the number of tasks the user would need to perform in order to achieve the one task of archiving the old data. Due to time constraints this feature was not implemented but the system produced still works so can be used until this feature can be implemented fully. The feature can be added into system at a later date or can be implemented for the next release of the system.

7.3 Graphical Floor Plan

Currently the website of the system uses a graphical floor plan of the tables which is hard coded into the system. This restricts the end user from changing the layout. If the end user did change the layout it will require changes to be made to the booking page of the website. This would require a developer to make the changes to the code and positioning.

Speaking with the end user showed that the table layout hardly ever changes apart from special occasions such as large parties or functions but the tables would always be placed back to their original position afterwards. This would mean that changes to the floor layout would never happen but if in the event it did need to change, it was still possible to do so.

7.4 Summary

Even though the changes mentioned were not prompted by the end user, the developer thought it was important to mention potential changes that could come up in the future as other modifications were not need as the users requirements did not change.

Chapter 8 – Evaluation

8.1 Introduction

Evaluation the system is crucial as it will determine whether the system is successful and if the user requirements have been met. [8] suggests three main goals when it comes to evaluating a system which are *"assess the extent of the system's functionality, to assess the effect of the interface on the user, and to identify any specific problems with the system"*.

8.2 Evaluation Criteria

To evaluate the system fully, the following aspects will be investigated to determine whether the project has been a success: Aim & Objectives, User Requirements, Enhancements, Usability Issues, Accessibility Issues, Security, Methodology, Further extensions to solution and finally a comparison to other Products.

8.3 Aim & Objectives

The objectives of the project stated at the beginning of the project in chapter 1, were completed successfully and by doing this the aim of the project had also been accomplished. The objectives of the project were as follows:

- ***Analyse the information needs of the business***.

  Detailed analysis of the problem was completed using various techniques to gather the user requirements of the project.

- ***Produce an appropriate information system according to the business needs***.

  The system created allowed the end user to view data needed easily and to produce hardcopies view reports generated by the system.

- ***Incorporate a database within the information system to store data such as the booking information and food menu.***

  An Access database was used to store and collect all the information from the website front end of the system. The database was primarily the end users side to the system.

- ***Incorporate a process which will allow customers to place a booking and pre-order their food.***

  From the website of the system, customers can place booking for tables and orders provided that they are a member of the restaurant. Registration is easy and is done also via the website by completing the register form.

8.4 Evaluation of User Requirements

The user requirements gathered in the analysis stage made up some of the minimum requirements set for the project. All functional and non-functional requirements specified were successfully achieved. The non-functional requirements of the project were that the system must be easy to use, in keeping with company image and look professional. Evaluation from the users of the website suggest that the

system has met the easy of use requirement as most of the feedback were marked as 'Excellent' and then asked to comment on the most positive thing about the website two users have put easy to use. To keep the system in keeping and professional the developer has made use of the company logo and pictures of the restaurant. Colours have been choice carefully so that everything is coordinated and in keeping with the remaining website features.

- ***A website which provides customers with overall information about the company.***
    - ***What Food is served***

      A menu webpage was creating listing all the items on offer to the customer at the restaurant. To make easier for the customers to read the items were split into sections as they would be on actual menu, with different colours to highlight item name and price.
    - ***Location***

      Reviewing other restaurant websites showed that it was important to include a map of the where the restaurant is. So the Location webpage was designed and implemented to show the address along with a map to highlight the position of the restaurant, street names and car parking spaces.
    - ***Opening Times***

      One of the basic information which all potential customers would need to know and would look to find on a website for is the 'Opening Times'. As Café Guru opening times do not change for any day of the week there was no need to list all the days with the opening times. Instead a simple webpage was create to inform customer that the restaurant is open all seven days a week from 6pm until late.
    - ***Contact Information***

      A Contact webpage was setup listing the telephone number to ring the restaurant but also an email facility which would allow the customers to email their queries or message to the restaurant.
    - ***How to get there***

      The 'Location' webpage was extended to include a postcode search option. On submission of customer's postcode, the customer is directed to Transport Direct website to be given the directions to the restaurant by any transport method they wished to use.
- ***A system which allows customers to see which tables are available with the use of a graphical layout.***

This was achieved as the 'Book' webpage includes the graphical layout of the tables at the restaurant. The availability of the tables is shown by colour coding the table, where red tables are not available and yellow tables are available. The customer need to input their preferences such as date, time and number of people to be given which tables are available to them to book.

- ***A system which allows a customer to book a table via the system.***

This was achieved as customers select the table they wish to book by selecting that table on the graphical display showing which tables are available. A confirmation page is shown if the submit button is clicked the details of the booking is input into the database.

- ***A system which allows a customer to pre-order their food while booking a table.***

This was achieved as pre-ordering the food has been implemented as a shopping cart where the customer can add the items they require with quantity and also remove it from the cart if they no longer want an item.

- ***Confirm a booking by email confirmation***.

This was achieved as once the customer submits to confirm the booking; a PHP script is run which performs the sending of the email. To be able to do this a SMTP server was needed.

- ***View of/Report of bookings made***.

This was achieved by creating a booking view to list all the bookings for the restaurant and booking reports can be generated on the reporting page. Different types of booking reports are available from viewing all, viewing for particular date or date range.

- ***Report trends in purchases and time & day bookings are made.***

This was achieved as the system can produce reports to show which time of booking is most popular with the customer and names of regular customers.

- ***Allow customers to cancel their booking***.

This was achieved by creating an additional option on the My Account page to allow the customer to cancel their booking. The customer will need to enter the booking number and submit to cancel.

8.5 Evaluation of Enhancements

Three out of the five enhancements specified in the problem chapter were actually implemented in the final solution of the system. The two that were left out were to allow the manager to produce staff rotas and to allow the staff to login to view their shifts. Because the whole system was based around bookings both the developer and the end user thought the two enhancements did not tie in with the rest of the project and so agreed that these enhancement were not necessary needed for the project to be considered successful.

8.6 Usability

The usability of the system is very important in developing a system which can be used. The Café Guru system had two distinct parts to the system, designed and created to be used by the intended users. The database side of the system was for the end user and the website was for the customers of the restaurant, so it was important to obtain evaluation for each of the intended users.

To evaluate usability of the website, the developer observed some of the users as they were performing their evaluation by using the system. From the observations made the five components of usability and Nielson's usability principles can be evaluated (background reading chapter):

- **Learnability**

  From the users observed no one had any problems knowing what to do or where to go for information they required. This maybe due to the way the system was designed so all the heading and buttons were labelled with obvious headings.

- **Efficiency**

  The website side of the system, the users where able to produce high level of productivity from initial use. The end user needed a little more learning with the database side of the system as understanding the methods to achieved some task would need more than the initial use to learn.

- **Memorability**

  As the users were only observed once each, no evaluation can be made about how much a user could remember. But it is expected that the memoability would be quite high as most users could use the website the very first time they used it without needed any training or guidance.

- **Errors**

  Most of the website users have marked the 'above average' option for error messages which were informative and clear. One user has said that the errors should not be shown before the error has been preformed, these were placed as a 'status' field so that the user would know that all field need input before submitting. On successful the 'Fields are empty' error would change to 'Submitted Successfully'. This was one way that the system prevents users from errors. Another was that the users can only select to book tables which are available therefore unavailable table are not clickable.

- **Satisfaction**

  Overall the results from all the website users shows high numbers in both the 'Excellent' and 'Above Average' evaluation fields representing their satisfaction of the website solution. The end user was also satisfied with the whole system and wishes the system to be extended to include his other branches.

8.7 Accessibility

Accessibility of the website has been evaluated by following the preliminary review of web sites for accessibility page on the W3C website. "*A preliminary review combines some manual checking of representative pages on a Web site, along with the use of several semi-automatic accessibility evaluation tools.*"[40]. To obtain better evaluation, the each of the test will be run in three different browsers to spot any differences.

1. Turn off images, and check whether appropriate alternative text for the images is available.
2. Turn off the sound, and check whether audio content is still available through text equivalents.
3. Use browser controls to vary font-size: verify that the font size changes on the screen accordingly; and that the page is still usable at larger font sizes.
4. Test with different screen resolution, and/or by resizing the application window to less than maximum, to verify that horizontal scrolling is not required (caution: test with different browsers, or examine code for absolute sizing, to ensure that it is a content problem not a browser problem).
5. Change the display color to gray scale (or print out page in gray scale or black and white) and observe whether the color contrast is adequate.
6. Without using the mouse, use the keyboard to navigate through the links and form controls on a page (for example, using the "*Tab*" key), making sure that you can access all links and form controls, and that the links clearly indicate what they lead to.

W3C review task for Accessibility [40].

TestNo.	Internet Explorer	FireFox	Opera
1	✓	✓	✓
2	n/a	n/a	n/a
3	✓	✓	✓
4	✓	✓	✓
5	✓	✓	✓
6	✓	✓	✗

The website successfully runs within each of the three browsers. The presentation of the content is also unchanged. The only minor problem is with the 'My Account' page, when viewed in Internet Explorer the buttons on the page are shown within a grey box but appear perfectly normal within Firefox and Opera web browsers. The buttons are textual images and have been created with a transparent background so that when place on top of another image it would only show the text and not the background. The reason for the difference is unknown and possible may be that the Internet Explorer does not support the transparent background feature, the developer tried to address the problem by checking whether the file type the image is saved, makes any difference.

As an additional check, the website was also viewing in a speech enabled web browser called Simply Web 2000 [30]. The website preformed extremely well apart from a few minor issues which could easily be corrected. A user could successfully navigate the website and would also know the content displayed on the page. The browser reads out all the titles given to each page once selected but some of the pages would need the titles to be change to make it more specific to the web page displayed. On

the menu page, once a menu category is selected the browser reads out all the menu items listed on page. Any page which includes a web form, the name of the input fields are read out along with the name given to any button which appears on screen such as 'Submit'. Screenshots of the web browser can be found in Appendix G**.**

Other accessibility issues have been kept in mind while implementing the system such as including Alt Tags for the images and navigational buttons. The graphical display table colours were carefully chosen so that the image could be used by all users, this was because the initial colours chosen were to be red and green but users that were colour blind would not be able to differentiate between the two colours so were changed to red and yellow.

8.8 Further Extensions to Solutions

The website can be integrated to incorporate a recommending feature, where items of food would be recommended to the user to purchase for their order, based on the selections made be other customers. Another way would be to implement a star ratings system so that when users are viewing the food items they can see what rating the items has been given by other customers.

Another potential extension to the system would be to include online payment. This would need extra security to be implemented in the system such as secure socket layer (SSL) to successfully process the customer's bank details by encrypting the data to prevent data capture. By introducing such a system possibilities would be available to the company to take deposits for bookings to prevent customers booking a table and not attending. If Café Guru was to offer customers with a takeaway service as mentioned by the manager in his letter, taking online payment would almost be a definite must as this would save time and effort for the company when delivering orders to customers as no cash would need to be involved. It also can be used as a process to prevent people from ordering items and not actually wanting them once produced as this would cause time and money to be wasted by the restaurant.

A comment from the end users letter were that the solution created was initially aimed for the Leeds branch and now having seen the results of the solution he wishes to integrate the solution to handle online bookings at any of this locations. This would require changes to be made to the structure of the solution as when a customer wants to view pictures or location details it will need some way of knowing which branch the customer is interested in. This could be done by getting the customer to select their required branch initially once entering the website, so that all pages then on would include information for that location only. It will also require changes to be made to the database so that when a booking is stored it would differentiate which branch the booking is for. Affecting the queries,

which gather information about booking details for reports needing to be adapted to comply with the other changes needed.

Potential users of the website included all customers that would attend the restaurant, so several customers were asked to complete an evaluation form which prompted them to answer a series of questions and were given chance to make any comments about the system as a whole. The completed evaluation forms can be found in Appendix G.

Comparison to alternative systems

In the background reading chapter, other solutions which were available were investigated before the solution for Café Guru was produced. The system created by the developer can be evaluated by comparing it to the system which already exist to highlight any advantages or disadvantages the system may have.

The two alternative systems were provided by RestaurantDiary.com [20] and OpenTable.com [36], both of which would have cost the end user money to purchase whereas the system created by the developer utilises open source technologies so that no hardware or software would be required to use the system. RestaurantDiary had six major advantages of which only two are not provided by the system created. These were:

- ***Multi-currency and multi-language***

  As Café Guru is only located within the UK, there was no need for the solution to provide Multi-currency or multi-language support.

- ***Ability to nominate "joined tables" so larger party bookings are automatically allocated to those tables.***

  This is not provided by the system created and could be something that can be included as a further extension to the system created. Large booking which require more than one table will be managed and organised by the staff at the restaurant if required by the customer.

There are no advantages which OpenTable system provides which can not be performed by the system created.

RestaurantDiary goes not use any graphical floor layout of table for taking its bookings whereas both the developers system and OpenTable system does. The booking process of RestaurantDiary includes a calendar view of each month, which is not provided by the system created. This potentially would prevent users making careless errors and allow better view for booking in future as customers can see what day of the week a particular date fall on, so should be considered as a possible improvement to the system.

Having reviewed website from potential competitors, comparing the website created for the system should also be compared with each other as an extra evaluation between restaurant websites. Initially two of the four websites reviewed used flash which slowed the loading of the site and meant that user was constantly waiting for things to appear this is why the developer has not developed the website in flash and has kept the images small and to a minimum level to increase the speed of website. The location pages on each of the website include the address along with map, only Mumtaz has included anything to do with offering directions as it instructs customer to Multimap.com to get directions, this is where the website for Café Guru as a major advantage as it uses a web service to provide customers directions from its site. The websites for Mumtaz and Anams offer its users an option to book online but this is only achieved by use of web forms whereas the Café Guru website has a fully functional graphical display, which also shows availability of tables instantly as well.

8.9 Methodology

The waterfall model was successfully followed in the project. Having completed all the stages until the end, the developer still believes that it was the good methodology for this project. The outcome of the project in terms of the solution created was very positive. The developer thought that if the end user could give up more time to contribute into the project alternate methodologies such as iterative prototyping could have been used. This may have picked up on the end users wanting to include other branches within the system earlier into the project.

8.10 Security

Security was need on the website to ensure that customer details were kept secure and confidential. The system was implemented to include a login facility so that registered customers could gain access to further areas on the website such as the 'My Account' page. Pages which included amending or view data stored about the customer required the user to log into the system first. Only data about the logged in customer is shown. The developer could have enhanced the security further by automatically logging out customer after a certain time of inactivity. This could have been achieved using expiring cookies within PHP which can be set to thirty minutes.

8.11 Summary

Overall the project has been a great success. The evaluation from customers reviewing the website has been very positive and has highlighted minor changes that could be done to the website. The end user is pleased with the system and now wants the system to be integrated further to cover his other branches.

Reference

[1] David Avison & Guy Fitzgerald, 2002, Inforamtion **System Development,** Methodologies, Techniques and Tools, Third Edition, McGraw-Hill, London

[2]Avison, D. Shah, H (1997). **The Information Systems Development Life Cycle: A First Choice in Information Systems**, McGraw-Hill, Berkshire, UK.

[3] David Barron, 2000, **The World of Scripting Languages,** Wiley, Chichester.

[4] Chris Bates, 2006, **Web Programming Building Internet Applications,** Third Edition, Wiley, Chichester.

[5] Bennet, S. McRobb, S. Farmer, R (1999) **Object Oriented Systems Analysis and Design: Using UML**, 3rd Edition, McGraw-Hill, New York.

[6] James Cadle and Donald Yeates, 2004, Project **Management for Information Systems** Fourth Edition, FT Prentice Hall, Harlow

[7]A Dennis, B. H. Wixom, R. M. Roth, (2006), **System Analysis Design,** Third Edition, J. Wiley.

[8] A. Dix et al, (2004) **Human Computer Interaction,** Third Edition, Pearson

[9] R. Elmasri, S. Navathe, **Fundamentals of Database Systems**, Third Edition, Addison-Wesley

[10] T Negrino, Smith Dori, (2006) **Macromedia Dreamweaver 8**, Learning Dreamweaver the Quick and Easy Way, Peachpit Press, US

[11] Donald Yeates and Tony Wakefield, 2004, **Systems Analysis and Design,** Second Edition, Financial Times Prentice Hall, Harlow

[12] Dr Jon McCormack, 2006, **Waterfall Model Picture**, Online, Accessed 7th November 2006, http://www.csse.monash.edu.au/~jonmc/CSE2305/Topics/07.13.SWEng1/html/waterfall.GIF

[13] eLanman.org, 2006, **Spiral Model Picture, Online,** Accessed 7th November 2006, http://www.elanman.org/teaching/gmu/swe620-infs622/Graphics/spiral_model.gif

[14] GoodWebHosting, 2002, **Server side scripting languages in a web hosting account**, Online, Accessed 8th November 2006, http://www.goodwebhosting.info/article.py/9

[15] W. T. Monkey, 2001, WebMonkey, **Server-Side Scripting Shootout,** Online, Accessed 9th November 2006, http://www.webmonkey.com/webmonkey/99/46/index1a.html

[16] Kevin Cooke, 1998, WebMonkey, **Introduction to Active Server Pages,** Online**,** Accessed 9th November 2006,

http://www.webmonkey.com/webmonkey/98/39/index2a.html?tw=programming

[17] Adobe, 2006, Macromedia **Buy ColdFusion MX 7**, Online, Accessed 9th November 2006, http://www.adobe.com/products/coldfusion/buy/

[18] Wikipedia, 2006, Rapid Application Development, Online, Accessed on 13th November 2006, http://en.wikipedia.org/wiki/Rapid_application_development

[19] Kevin Yank, 2001, **Which server-side Language is right for you?**, Online, Accessed on 13th 2006, http://www.sitepoint.com/article/server-side-language-right

[20] RestaurantDiary.com, 2006, **More then just a product, It's a new way of thinking**, Online, Accessed on 29th November 2006, http://www.restaurantdiary.com/product.asp

[21] Wikipedia, 2006, **Microsoft Access**, Online, Accessed 13th December 2006, http://en.wikipedia.org/wiki/Microsoft_Access

[22] Wikipedia, 2006, **Microsoft SQL Server**, Online, Accessed 13th December 2006, http://en.wikipedia.org/wiki/Microsoft_SQL_Server

[23] Wikipedia, 2006, **MySQL**, Online, Accessed 13th December 2006, http://en.wikipedia.org/wiki/MySQL

[24] UseIt.com, 2003, **Usability 101: Introduction to Usability**, Online, Accessed 13th December 2006, http://www.useit.com/alertbox/20030825.html

[25] Martin Brown, 2003, **IIS vs. Apache, Looking Beyond the Rhetoric**, Online, Accessed 13th December 2006, http://www.serverwatch.com/tutorials/article.php/10825_3074841_1

[26] Jennifer Kyrnin, About: Web design /HTML, Time to Switch from IIS, Online, Accessed 13th December 2006, http://webdesign.about.com/cs/webservers/a/aa092501a.htm

[27] VeriSign, 2007, **Secure Sockets Layer (SSL): How It Works,** Online, Accessed 26th April 2007, http://www.verisign.com/ssl/ssl-information-center/how-ssl-security-works/index.html

[28]Shawn Lawton Henry, (2005), **W3C, Introduction to Web Accessibility,** Version 2.0, Online, Accessed 27th April 2007, http://www.w3.org/WAI/intro/accessibility.php

[29] Judy Brewer, (2005), **W3C**, **How People with Disabilities Use the Web,** Online, Online, Accessed 27th April 2007, http://www.w3.org/WAI/EO/Drafts/PWD-Use-Web/#colorblindness

[30]Sergio Ammirata, **Simply Web 2000 Home page**, EconoNet International Speech Series, Online, Accessed 27th April 2007, http://www.econointl.com/sw/

[31] **UseIt.com**, 2003, **Ten Usability Heuristics**, Online, Accessed 27th April 2007, http://www.useit.com/papers/heuristic/heuristic_list.html

[32] **TheGrand.com**, **Theatre and Opera House Leeds**, Leeds Grand Theatre, Online, Accessed 27th April 2007, https://tickets.leedsgrandtheatre.com/welcome.asp

[33] **Café Quebec**, Indian Restaurant, Online, Accessed 27th April 2007, http://www.cafequebec.co.uk/tablebooking.html

[34] Matthew French, (2005), **The Thai House Restaurant,** Online booking form, Online, Accessed 27th April 2007, http://www.thaihouse.biz/onlinebookingform.shtml

[35] **Sheffield Theatres**, Online, Accessed 27th April 2007, http://www.sheffieldtheatres.co.uk/index.cfm?fuseaction=whatson.glance

[36] 2005, **OpenTable.com**, Online, Accessed 27th April 2007, http://www.opentable.com/info/restaurateurs/software.Html

[37] Todd VerBeek, 2006, **Professional Web Servers, Online,** Accessed 27th April 2007, http://microsoft.toddverbeek.com/httpd.html

[38] **Database Normalization Basics**, Online, Accessed 27th April 2007, http://databases.about.com/od/specificproducts/a/normalization.htm

[39] Janet Valade, (2004) **PHP and MySQL for Dummies**, Second Edition, Wiley.

[40] Shadi Abou-Zahra,(2006), W3C, Preliminary Review of Web Sites for Accessibility, **Online, Accessed 27th April 2007,** http://www.w3.org/WAI/eval/preliminary.html

Appendix A- Personal Reflection

The project has been a very lengthy stressful process. I am really relived that the end is near. Overall I have enjoyed the project, it has been the most complex and challenging project I have done to date. I am sure that it is not the final project I will take part in and has provided a great experience for future project. Looking back at the project I am extremely pleased with the outcome of the project as at the beginning I was not sure how I could achieve what I had set out to do. I have learnt many new things through the development of the project which I had not studied or used before such as PHP scripting language.

Having now completed the project, I can draw upon the experience to advice fellow students which may be undertaking a project similar:

- ***Select your modules carefully***

  Towards the end of semester two, the project will require a large amount of time and selecting your modules carefully can be a benefit. I choose to have an unequal split of modules, so that it would allow more time in semester two where most of the implementation of the system would be completed. Other student who took an equal split found themselves with more work in semester two due to additional coursework deadlines often very close to project deadlines.

- ***Choose something interesting***

  It is important that you select a topic area which you are interested in. As this will drive your enthusiasm and make you more determined to work hard to produce a better system. Uninteresting project area would cause lack of productivity and will power to achieve something great.

- ***Start Implementation as early as possible***

  Implementation of the system starts in the second semester after the exams and the mid-project report has been handed in. I would advice all students that they should start implementation as early as possible to avoid work overload towards the deadline for the demonstration session, as most of the modules deadlines fall very close, at a time where you're desperately trying to complete the system before the demonstration.

- ***Plan***

  Most students just like me create a plan for the project but often do not follow it. I would advice other students not to do the same as the plan will make sure that work is completed on time. It would avoid many late night hours spent doing work that could have been completed earlier.

- ***Seek Help***

The project is often daunting when completing the project write-up but I advice students to seek help from supervisors and assessors when needed. Having been through the process many times they have a vast amount of knowledge and can guide you in the right direction.

I am delighted with the system created, especially the website front end this was the first time I actually implementing a website from scratch. There are aspects of the website which did not perform as I initially intended but this was due to the restriction of the scripting language or my lack of knowledge of it. My online booking system used a graphical display which had to be hard coded and meant that it was not as good looking as I would have wanted it. On this basis I think I should have carefully selected the scripting language which would have allowed me to create the best graphical display.

Appendix B- Gantt Chart

Planned Schedule

	OCT				NOV				DEC				JAN				FEB				MAR				APR			
Task	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RESEARCH																												
ANALYSIS																												
User Req.																												
Specification																												
DESIGN																												
Database																												
Website																												
IMPLEMENTATION																												
Database																												
Website																												
TESTING																												
Further Work																												
EVALUATION																												
REPORT																												

Exams

Actual Schedule

	OCT				NOV				DEC				JAN				FEB				MAR				APR			
Task	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BACKGROUND RESEARCH																												
ANALYSIS																												
User Requirements																												
Specification																												
DESIGN																												
Database																												
Website																												
IMPLEMENTATION																												
Database																												
Website																												
TESTING																												
Further Work																												
EVALUATION																												
REPORT																												

Exams

Appendix C – Research

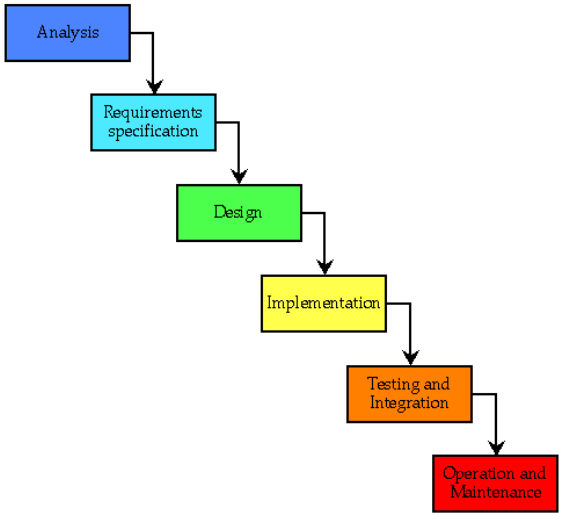


Figure 2.1: The Waterfall Model [3]

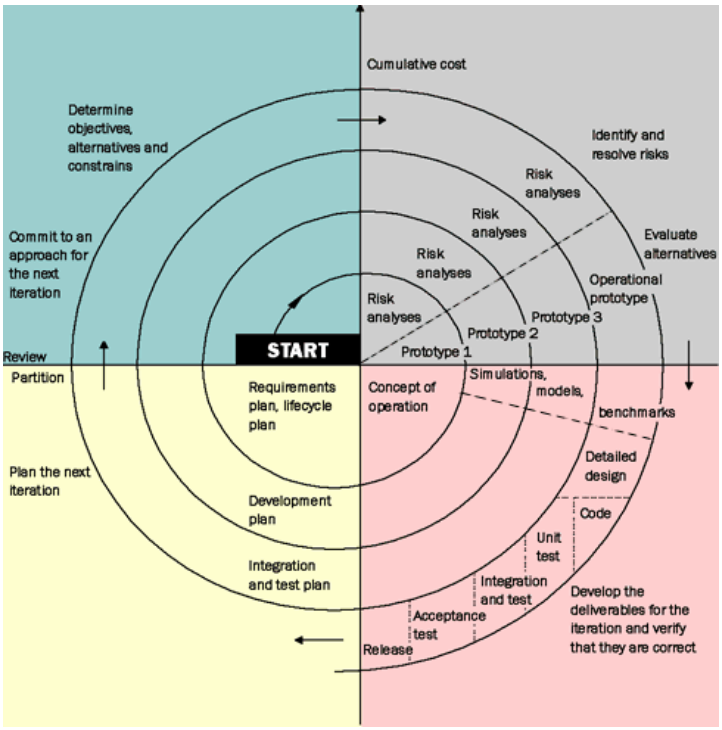


Figure 2.2: Spiral Model [4]

LondonEats

SELECT THE AREA THAT YOU WOULD LIKE TO BE SEATED IN
Restaurant
SELECT THE SESSION THAT YOU WANT TO BOOK
Dinner
SELECT OR ENTER THE NUMBER OF PEOPLE
MAX:20
1 2 3 4 5 6 7 8 9 10 11 12 13
2
SELECT THE DATE THAT YOU WOULD LIKE TO BOOK
DECEMBER 2006
MON TUE WED THU FRI SAT SUN
next

User enter their booking preferences/requirements

Clear Calendar for date selection

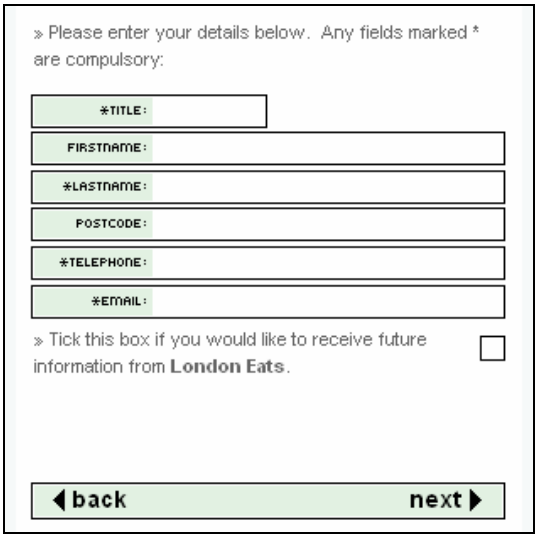
Figure 2.3

TRY AN ALTERNATIVE AREA OF THE RESTAURANT HERE
Restaurant
17:30 17:45 18:00 18:15 18:30 18:45 19:00
19:15 19:30 19:45 20:00 20:15 20:30 20:45
21:00 21:15 21:30 21:45 22:00 22:15 22:30
» Displayed above are the tables of 2 available to book online for Dinner on Monday, 11th December 2006.
» Select any of the available timeslots to continue or, if you wish to alter any of your booking details, use the back button below.
back

Available times are shown in green

Unavailable times are have been greyed out and have been crossed off.

Figure 2.4



Finally capture customer details

Figure 2.5

The Grand Theatre

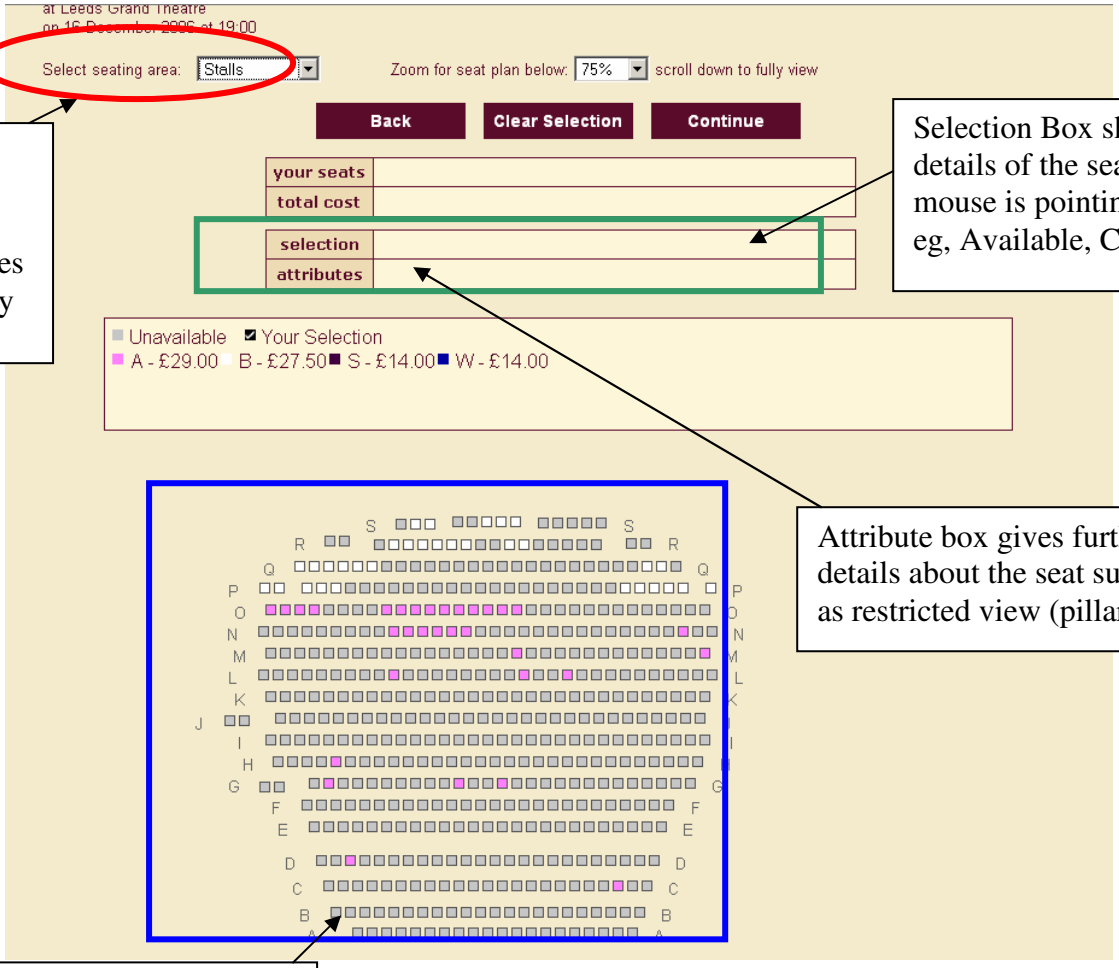

Select seating area: Stalls
Zoom for seat plan below: 75% scroll down to fully view
Back
Clear Selection
Continue
your seats
total cost
selection
attributes
Unavailable
Your Selection
A - £29.00
B - £27.50
S - £14.00
W - £14.00
Seating Area selection, once changed the seat display also changes to show availability
Selection Box shows details of the seat the mouse is pointing at eg, Available, Cost
Attribute box gives further details about the seat such as restricted view (pillar)
Display of seat layout

Figure 2.6.

Sheffield Theatre

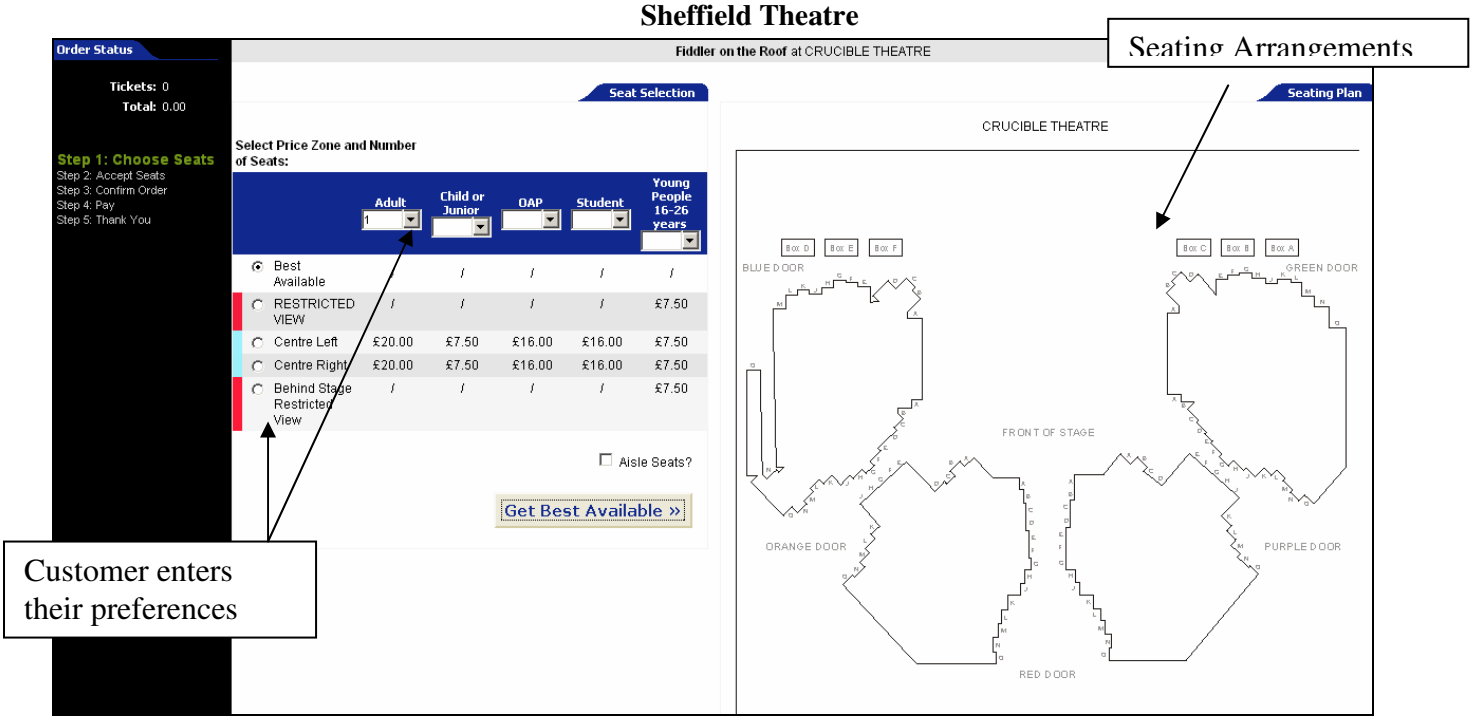
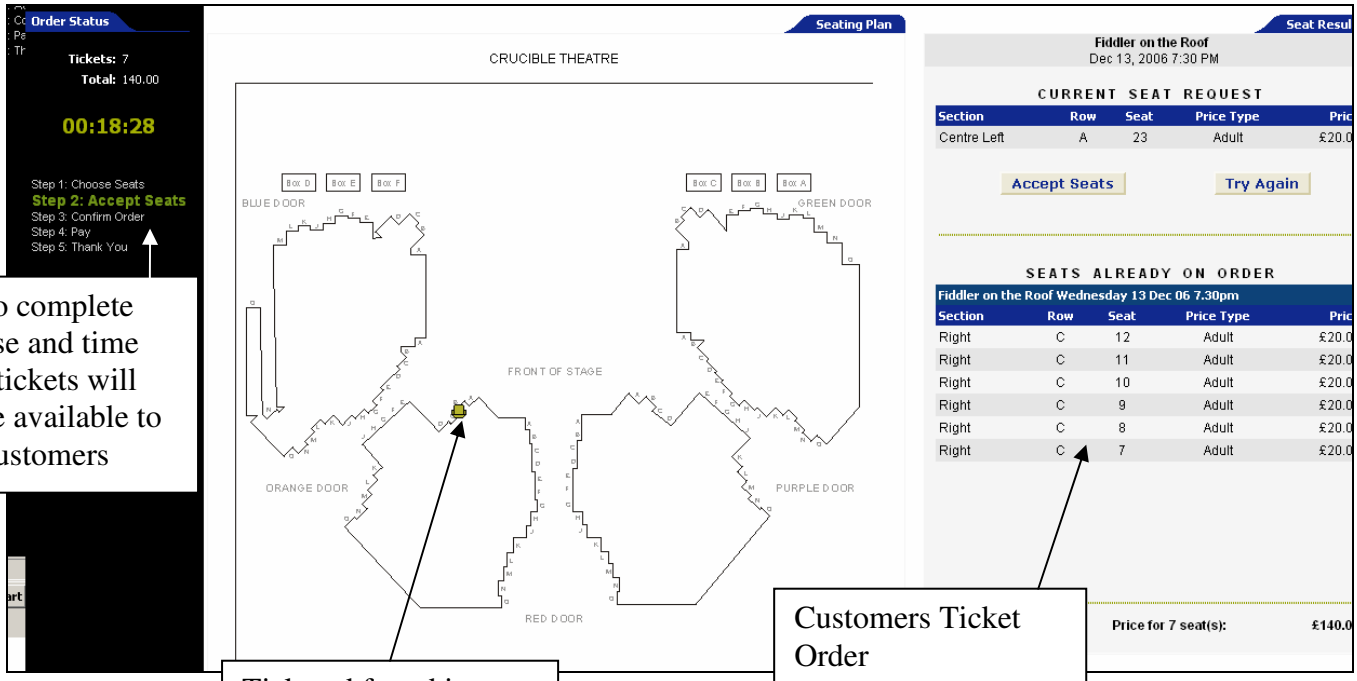


Figure 2.7



Steps to complete purchase and time before tickets will become available to other customers

Customers Ticket Order

Ticketed found is shown for the seat highlighted in the display

Figure 2.8.

Appendix D- Design

Restaurant Review

Aagrah

Address and Map
Slideshow of pictures
Naeem Aslam
St Peter's Square, Leeds
Facilities Available
Seating Capacity 165
Separate bar and reception area
Take away meals available
Private functions catered for
Vegetarian and Non-Vegetarian Meals available
Free Parking
Address
St Peter's Square
Quarry Hill
LEEDS
LS9 8AH
T: 0113 245 5667
Click on map for directions
Promotional Offers @ Leeds City
Early Bird/Pre Theatre Special 2 f
Available January 2005. Order 2 starters and 2 main meals and the receive the least expensive main mea for free. Order 4 starters and 4 main meals and receive the least expensive 2 main dishes free. This offer is valid Sunday to Thursday 5:30pm - 7:00pm. Orders must be placed by 7:00pm and this is only valid at the Leeds City branch. The offer is not valid on takeaway food and cannot be used in conjunction with any other promotions or special fixed price buffets. The management reserve the right to refuse or withdraw this offer at any time. Please contact the branch to check availability of this
Adblock
Opening Times
Aagrah Restaurant - Leeds
Mon - Sat: 5:30pm - 12 midnight
Sunday: 5:30pm - 11:00pm
Please contact the branch to check availability of this offer before coming to the restaurant.
Sunday/Monday Evening Buffet Special
Our three course buffet at £10.95 per person is available from 5:30pm to 9:30pm at Leeds. The Mega Buffet is also available at Garforth, Tadcaster, Wakefield and Denby Dale. It is truly excellent value!! Please contact the branch to check availability of this offer before coming to the restaurant.
Aagrah Smoking Policy
Smoking is not permitted in the dining area at all Aagrah restaurants. Smoking is permitted only in the reception areas. If unsure, please ask a member of staff for further details.
© 2006 Aagrah® Group of Restaurants. All Rights Reserved.
Aagrah Group of Restaurants, Aagrah House, 4 Saltaire Road, Shipley, BRADFORD, BD18 3HN
T: 01274 530880, F: 01274 599105, E: info@aagrah.com

Figure 4.1

Akbar's

Figure 4.2

history host restaurants
RESTAURANTS
location
menu
gallery
Small Text Font
Leeds Eastgate–Menu
Akbar's specialises in sizzling pan-cooked baltis from Baltistan, an extreme mountainous region North of Pakistan. Akbar's offers enjoyable food of a consistently high quality, at reasonable prices and made with the very best of fine ingredients. Everything on the menu is prepared on the premises by skilled and de chefs to guarantee authentic cuisine.
If you cannot find the dish you desire on our menu, please ask the staff for assistance.
A La Carte Menu
[Starters] [Vegetarian Starters]
[Old School Favourites] [Chefs specialities] [Vegetarian Specialities] [Allam Khan's Lahori Style Di
[Original baltis] [Special baltis] [Handi of the day] [Traditional Desi-Apna Style]
[Sundries]
[Desserts]
Set Menu
[Set menu 1] [Set menu 2] [Set menu 3] [Vegetarian Set menu]
All menus appears on one page, links to jump to section on the page

Figure 4.3

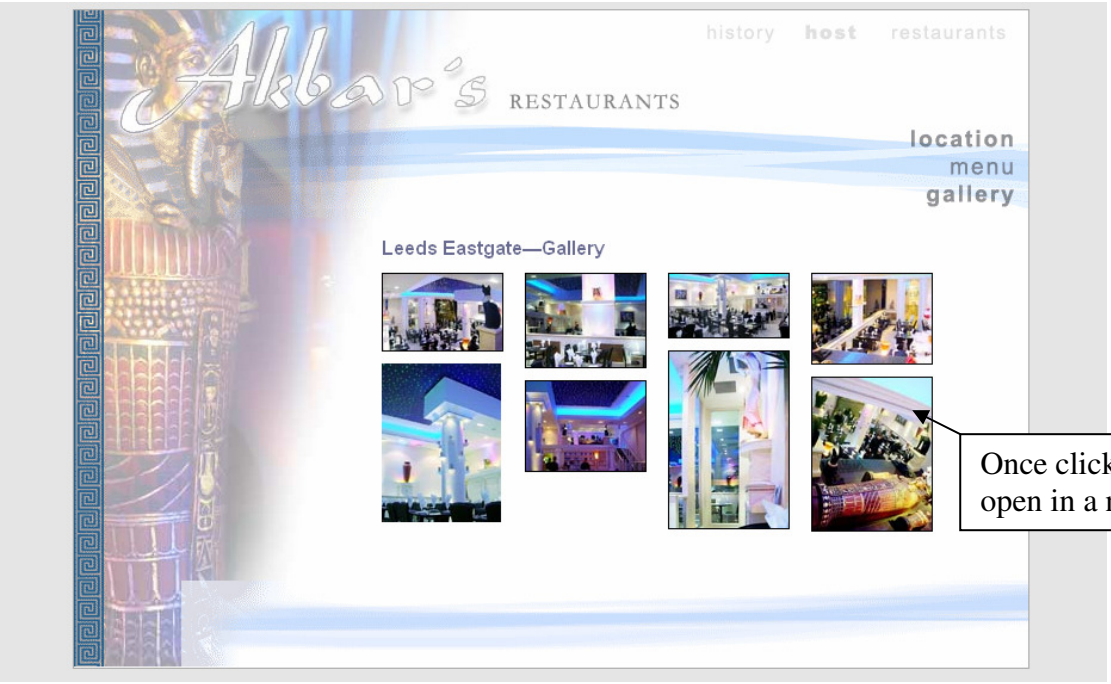


Figure 4.4

Anam's

.: HOME .: ABOUT US .: SERVICES .: TOUR .: BOOKINGS .: CAREERS .: MENU .: CONTACT US
MENU
APPETISERS
MAIN COURSE
CHEFS SPECIALS
DESI SPECIALS
VEGETARIAN MENU
CHINESE SELECTION
SIDE DISHES
APPETISERS
• POPADOM (V)
A MIXTURE OF URAD AND RICE FLOUR SPICED WITH SALT AND PEPPER AND THEN DEEP FRIED
SHORBE (SOUPS OF THE DAY)
A SPECIALLY SELECTED VARIETY OF FRESHLY PREPARED SOUPS:
• CHICKEN AND CORN
• SABZI - VEGETABLE (V)
• YAKHNI - INDIAN STEW
FLAVOURED WITH TRADITIONAL HERBS & SPICES AND SERVED WITH A FRESHLY BAKED GARLIC BREAD
• PRAWN COCKTAIL
FRESH COCKTAIL MIX WITH PRAWNS
KEBABS
SEEKH KEBABS
• MEAT
• CHICKEN
JUICY CHARCOAL GRILLED KEBABS PREPARED WITH FRESHLY GROUNDED SPICES AND SERVED WITH A SIDE SALAD
• SHAMI KEBAB
SPICY MINCED LAMB PREPARED WITH LENTILS & COATED WITH EGG SERVED WITH MINT SAUCE
• PESHWARI CHAPPLE KEBAB
MINCED LAMB MIXED WITH ONIONS WITH SELECTED SPICES AND FRIED
Mute
Site designed by: S - Media Division
Copyright © 2003 Anam's Ltd. All rights reserved.
Legal Disclaimer
Small text font
Menu Sections, customer can go directly from one section to another by clicking here

Figure 4.5

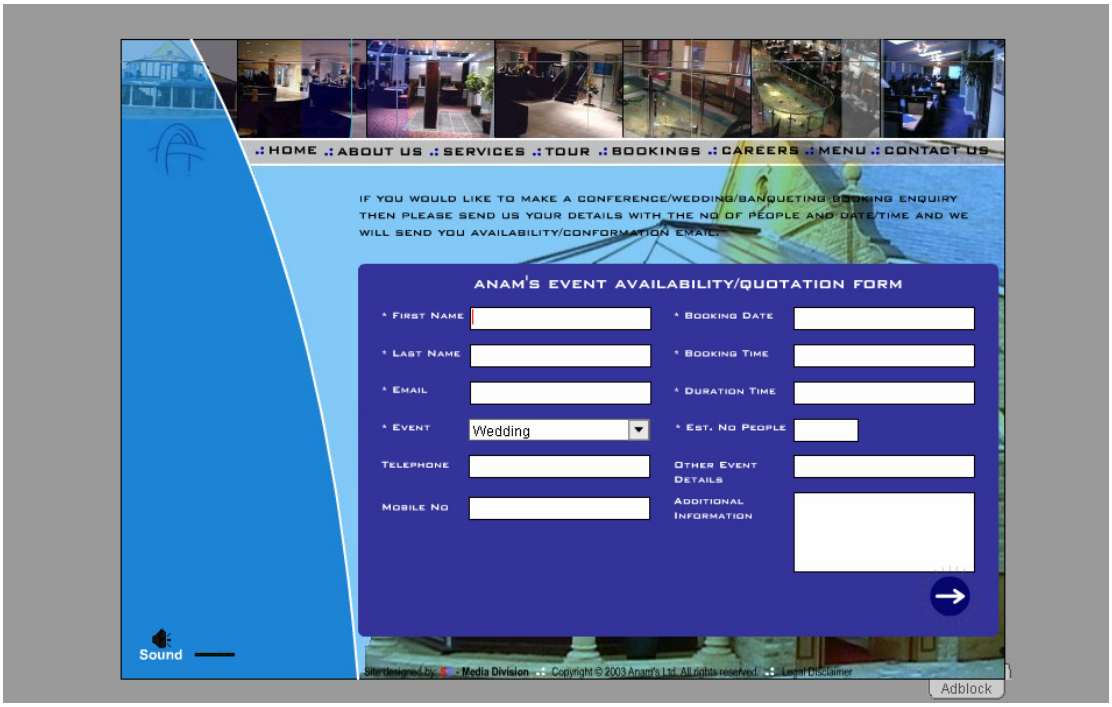

.: HOME .: ABOUT US .: SERVICES .: TOUR .: BOOKINGS .: CAREERS .: MENU .: CONTACT US
IF YOU WOULD LIKE TO MAKE A CONFERENCE/WEDDING/BANQUETING BOOKING ENQUIRY THEN PLEASE SEND US YOUR DETAILS WITH THE NO OF PEOPLE AND DATE/TIME AND WE WILL SEND YOU AVAILABILITY/CONFORMATION EMAIL.
ANAM'S EVENT AVAILABILITY/QUOTATION FORM
* First Name
* Last Name
* Email
* Event
Wedding
Telephone
Mobile No
* Booking Date
* Booking Time
* Duration Time
* Est. No People
Other Event Details
Additional Information
Sound
Adblock

Figure 4.6

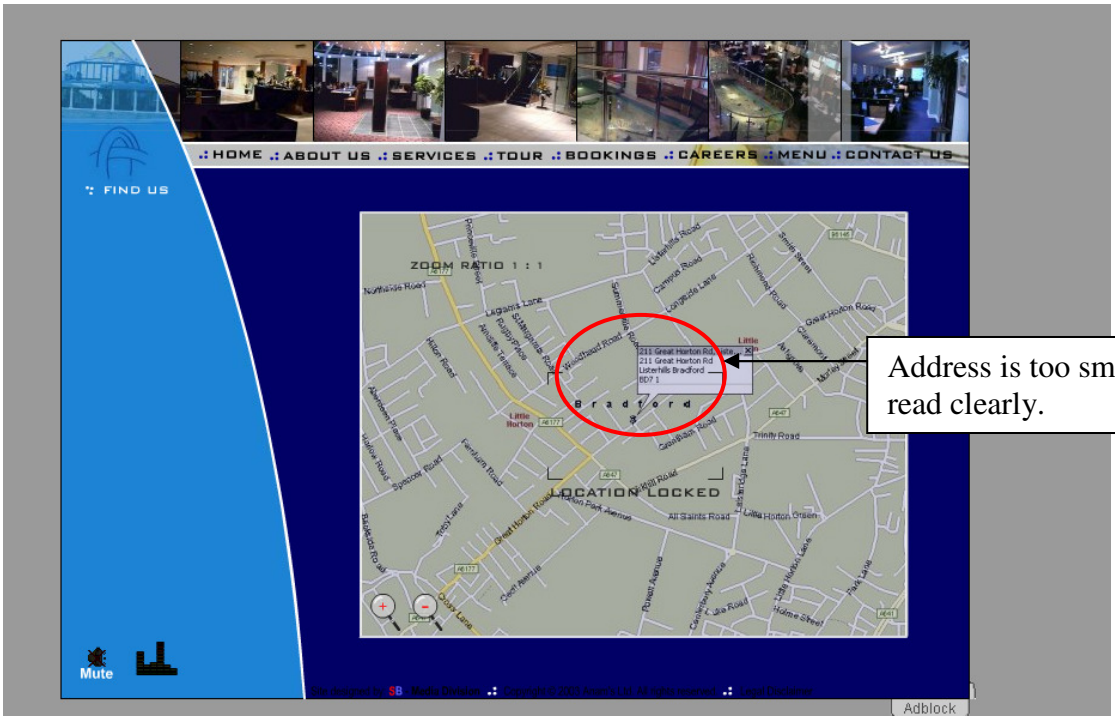
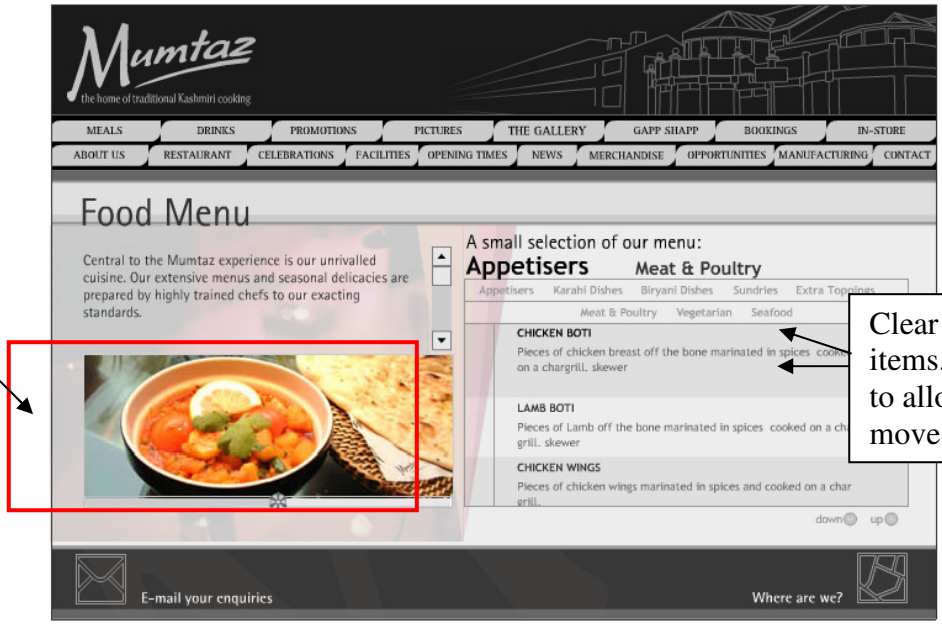

.: HOME .: ABOUT US .: SERVICES .: TOUR .: BOOKINGS .: CAREERS .: MENU .: CONTACT US
: FIND US
ZOOM RATIO 1 : 1
LOCATION LOCKED
Address is too small to read clearly.
Mute
Adblock

Figure 4.7

Mumtaz



Flash video slideshow

Clear listings of menu items. Split into sections to allow customer to move to desired section.

Figure 4.8

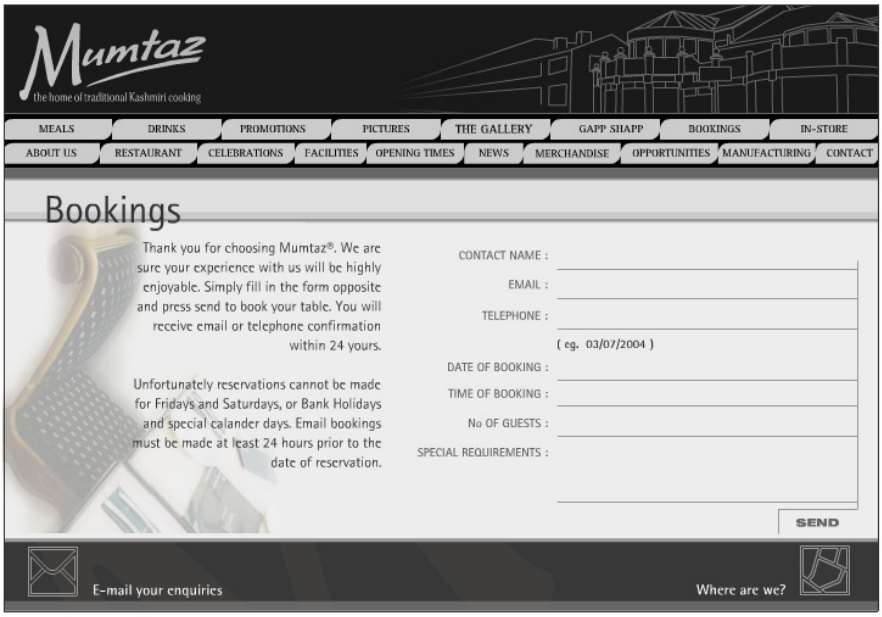


Figure 4.9

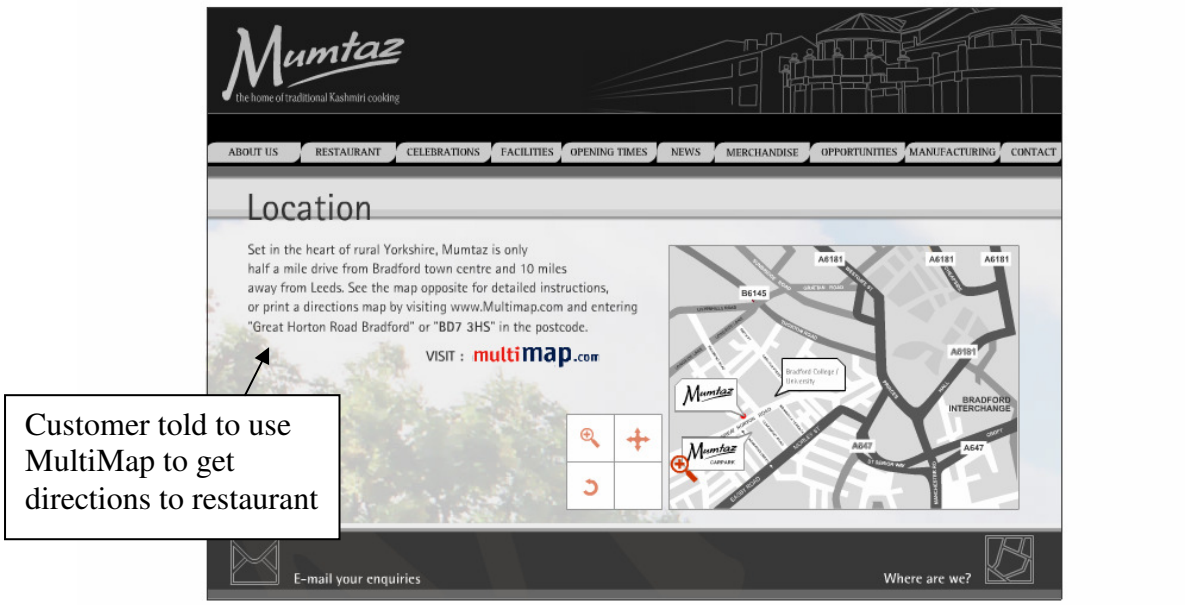

Mumtaz
the home of traditional Kashmiri cooking
ABOUT US
RESTAURANT
CELEBRATIONS
FACILITIES
OPENING TIMES
NEWS
MERCHANDISE
OPPORTUNITIES
MANUFACTURING
CONTACT
Location
Set in the heart of rural Yorkshire, Mumtaz is only half a mile drive from Bradford town centre and 10 miles away from Leeds. See the map opposite for detailed instructions, or print a directions map by visiting www.Multimap.com and entering "Great Horton Road Bradford" or "BD7 3HS" in the postcode.
VISIT : multimap.com
Customer told to use MultiMap to get directions to restaurant
E-mail your enquiries
Where are we?

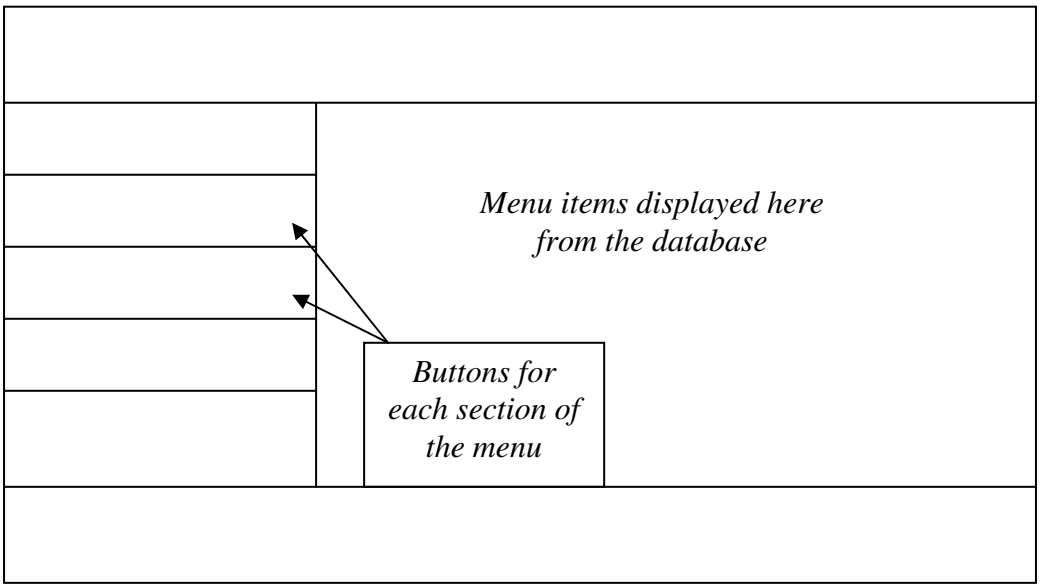
Figure 4.10

Webpage Design

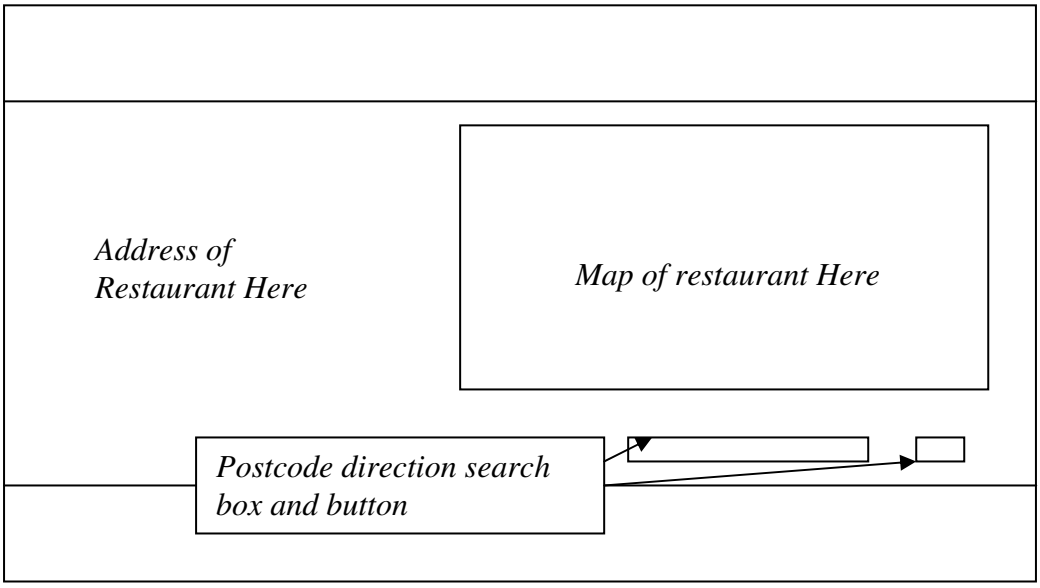
Home Page

Company logo and name on home page

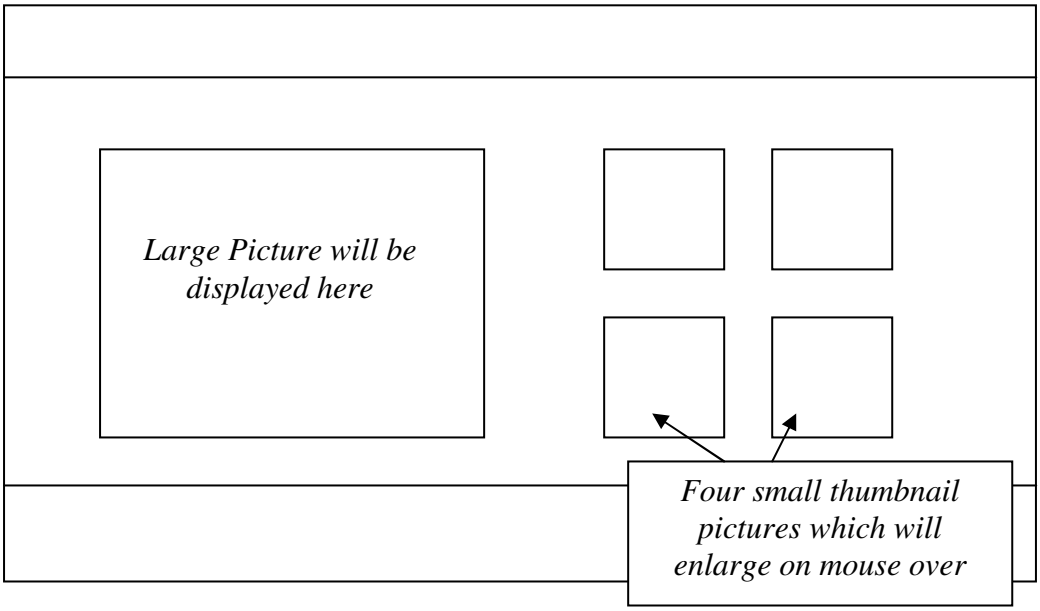
Menu Page



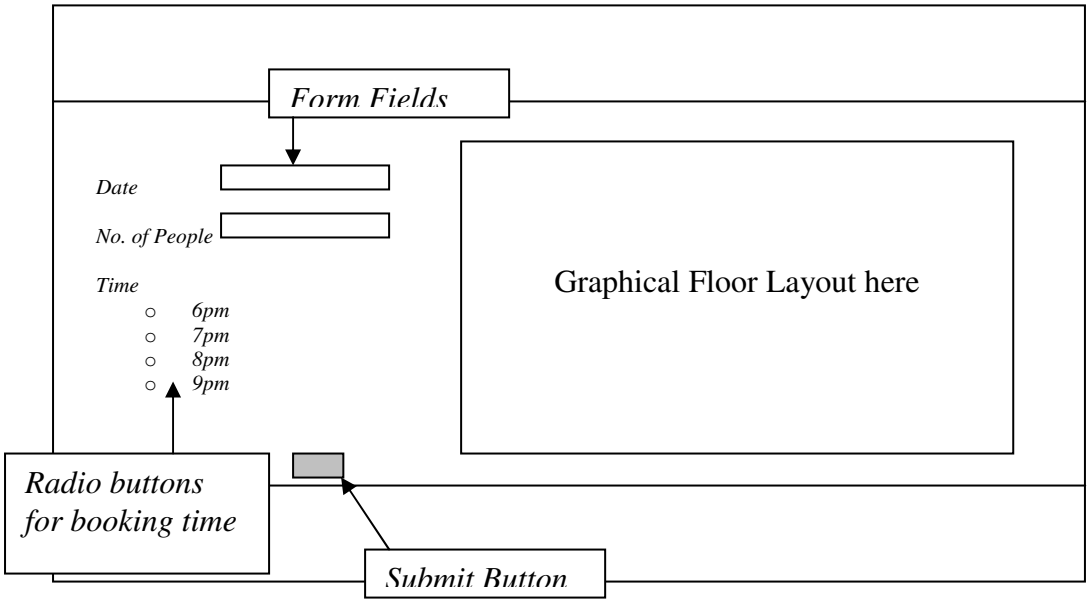
Location Page



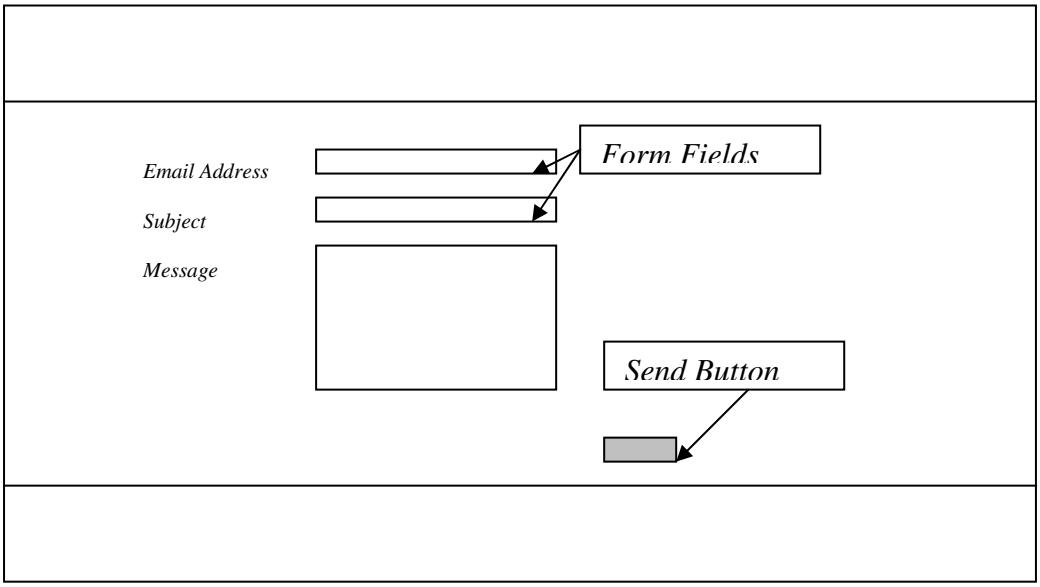
Pictures Page



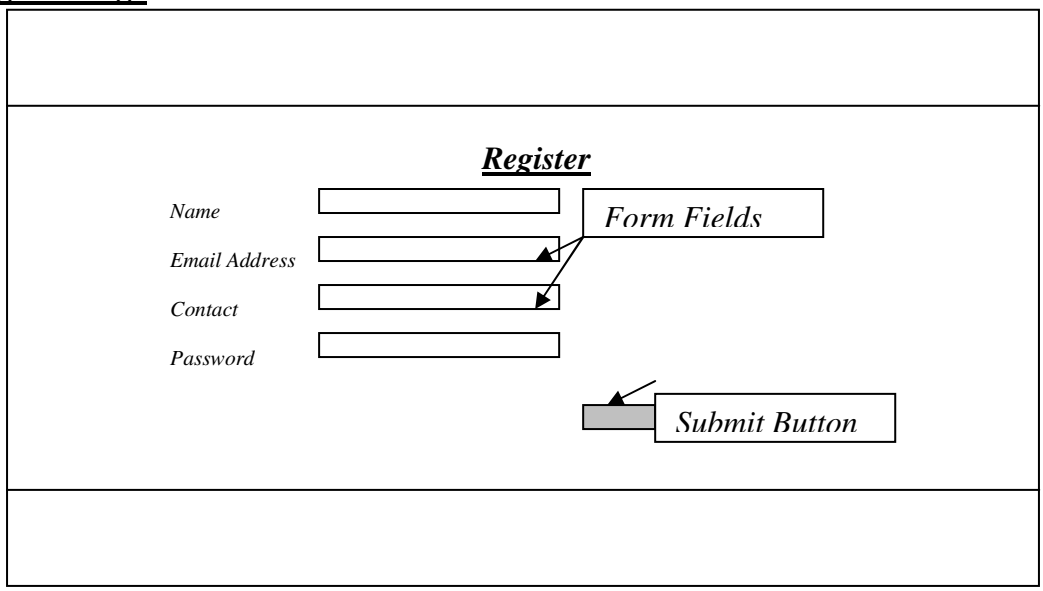
Book Page



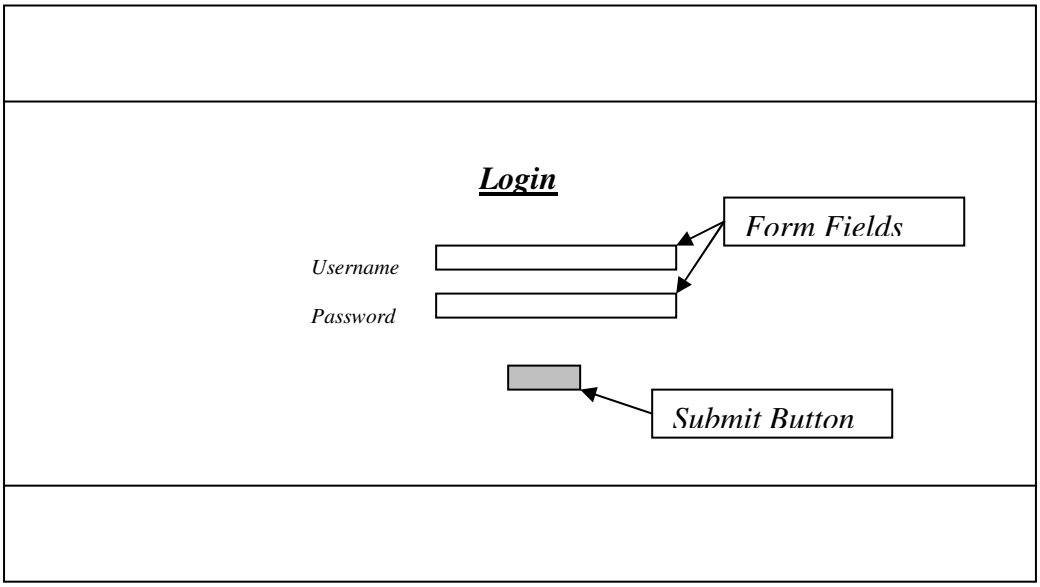
Contact Us Page



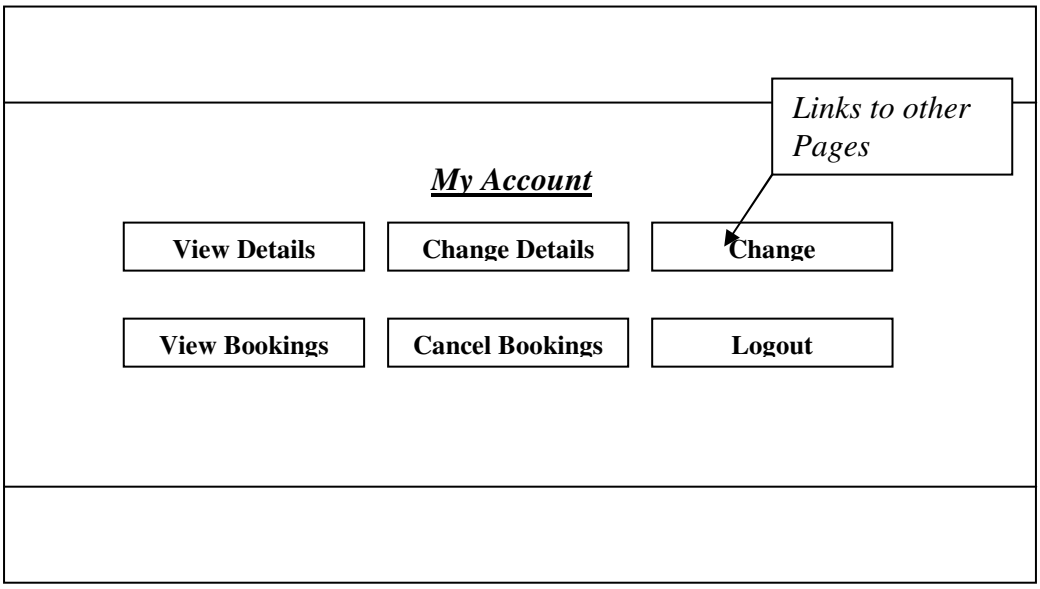
Register Page



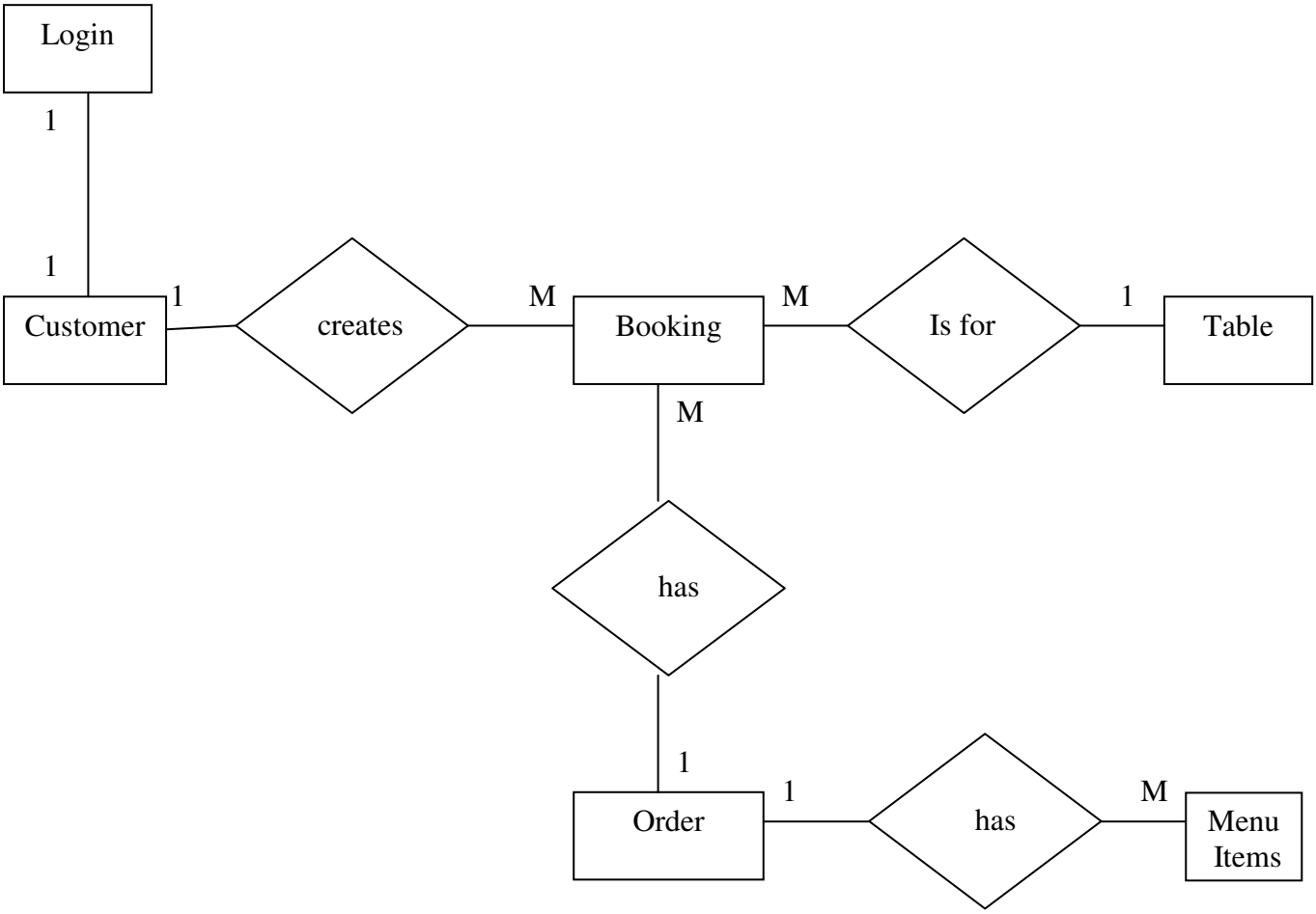
Login Page



My Account Page



ER-Diagram


Login
1
1
Customer
1
creates
M
Booking
M
Is for
1
Table
M
has
1
Order
1
has
M
Menu Items

Appendix E – Implementation

Website

Red circle on each figure shows what screen is been displayed from the website.

Figure 5.1

Home Menu Location Pictures Book Opening Time Contact
Starters
Main Courses
Specialities
Side Dishes
Rice
Breads
Chicken Tikka £3.60
Marinated pieces of chicken cooked in a charcoal oven.
Fingers of Seasonal Melon £3.80
Melon arrayed with tropical fruits and berries topped with mango water ice and mango coulis.
Spiced Prawn Puree £4.70
Briskly flash fried prawns encased in a crispy deep fried pancake
Shami Kebabs £3.90
Minced lamb and lentils pate coated in egg and pan-fried.
Chicken and Sweetcorn Spring Rolls £3.60
Register Login My Account Logout

Figure 5.2

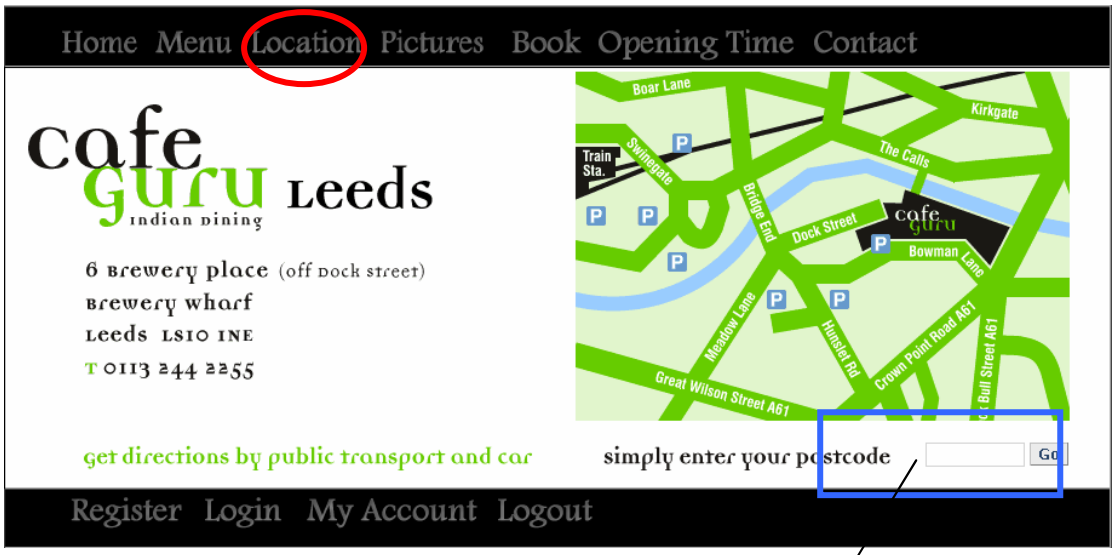

Home Menu Location Pictures Book Opening Time Contact
cafe guru Leeds
indian dining
6 Brewery place (off Dock street)
Brewery Wharf
Leeds LS10 1NE
T 0113 244 2255
get directions by public transport and car
simply enter your postcode
Go
Register Login My Account Logout

Figure 5.3

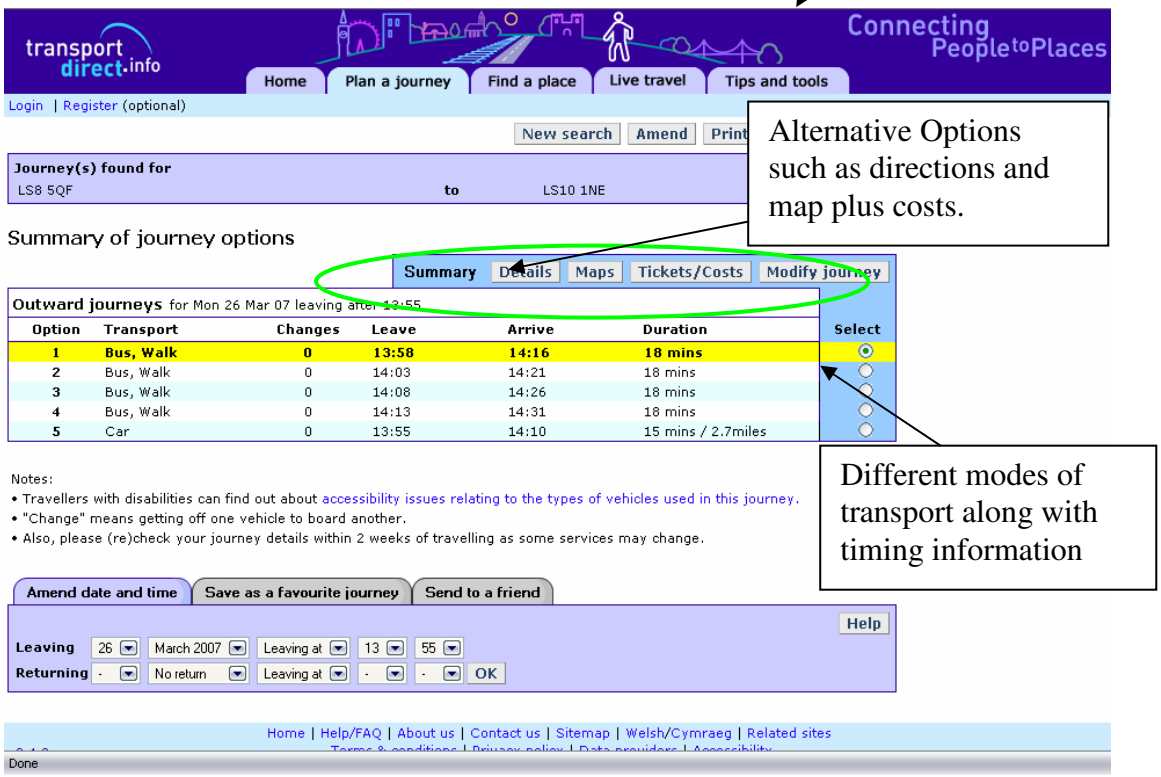

transport direct.info
Connecting People to Places
Home
Plan a journey
Find a place
Live travel
Tips and tools
Login | Register (optional)
New search
Amend
Journey(s) found for
LS8 5QF
to
LS10 1NE
Summary of journey options
Summary
Details
Maps
Tickets/Costs
Modify journey
Outward journeys for Mon 26 Mar 07 leaving after
Option
Transport
Changes
Leave
Arrive
Duration
Select
1 Bus, Walk 0 13:58 14:16 18 mins
2 Bus, Walk 0 14:03 14:21 18 mins
3 Bus, Walk 0 14:08 14:26 18 mins
4 Bus, Walk 0 14:13 14:31 18 mins
5 Car 0 13:55 14:10 15 mins / 2.7miles
Notes:
• Travellers with disabilities can find out about accessibility issues relating to the types of vehicles used in this journey.
• "Change" means getting off one vehicle to board another.
• Also, please (re)check your journey details within 2 weeks of travelling as some services may change.
Amend date and time
Save as a favourite journey
Send to a friend
Help
Leaving
Returning
March 2007
No return
Leaving at
OK
Home | Help/FAQ | About us | Contact us | Sitemap | Welsh/Cymraeg | Related sites
Done
Alternative Options such as directions and map plus costs.
Different modes of transport along with timing information

Figure 5.4

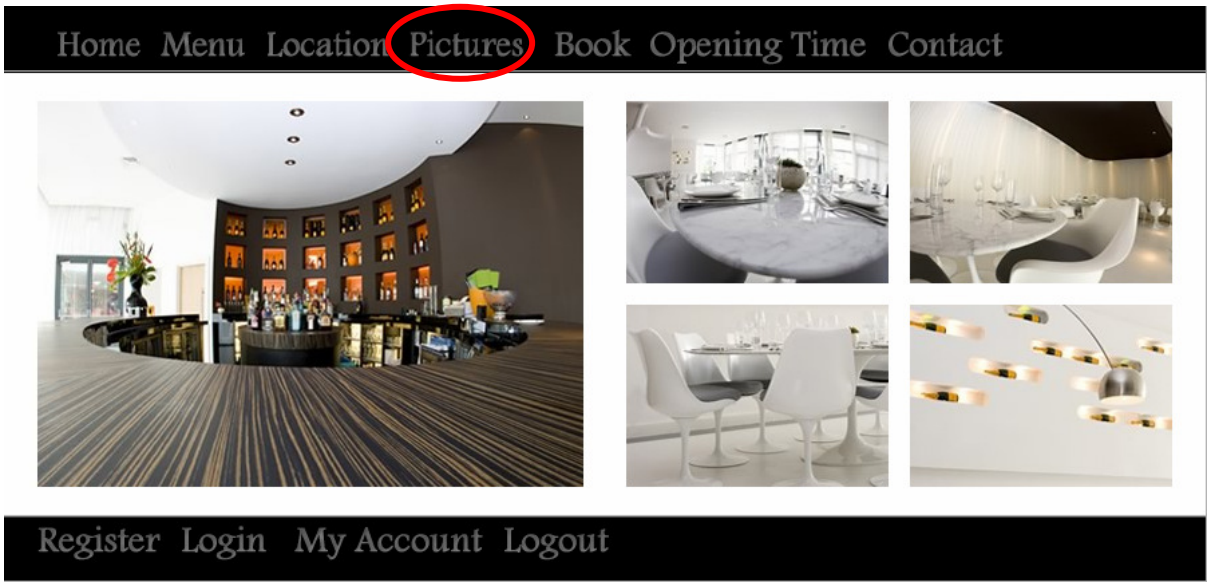


Figure 5.5

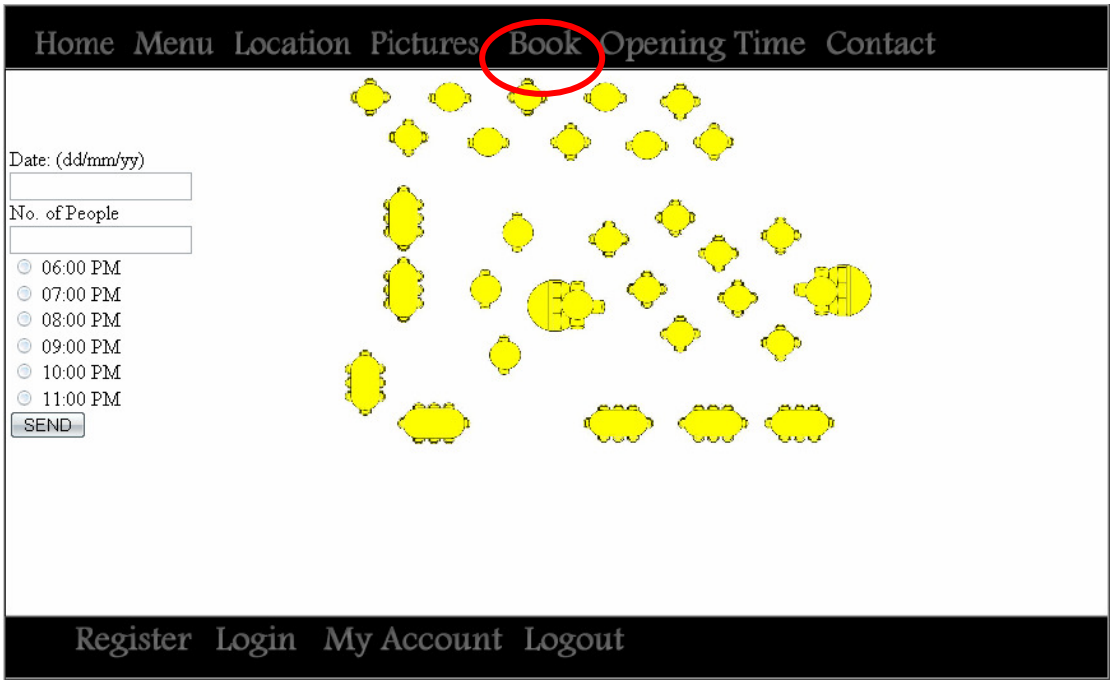


Figure 5.6

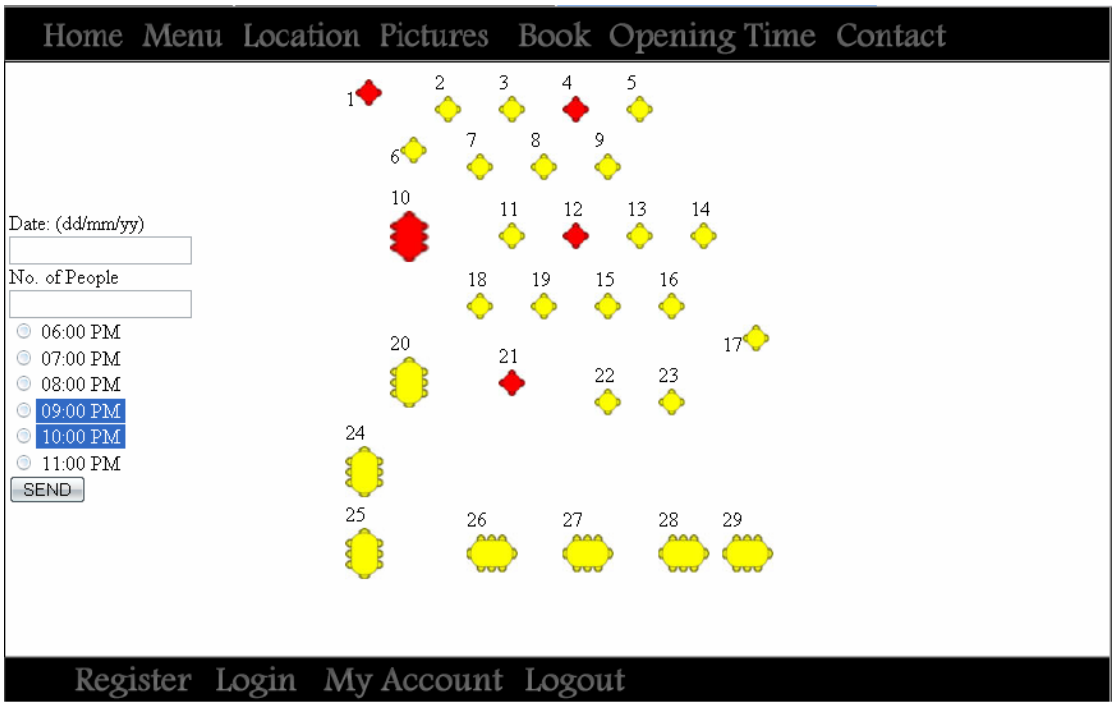


Figure 5.7

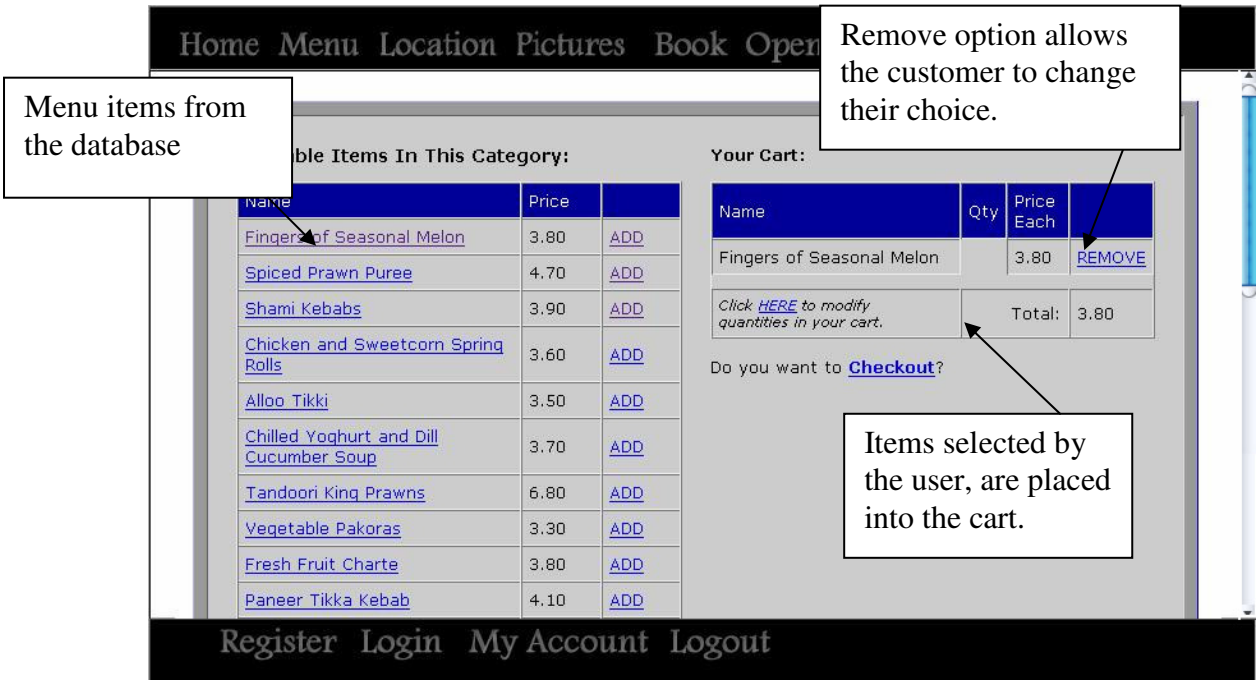

Home Menu Location Pictures Book Oper
Menu items from the database
Remove option allows the customer to change their choice.
Your Cart:
Name
Price
Qty
Price Each
Fingers of Seasonal Melon 3.80 ADD
Spiced Prawn Puree 4.70 ADD
Shami Kebabs 3.90 ADD
Chicken and Sweetcorn Spring Rolls 3.60 ADD
Alloo Tikki 3.50 ADD
Chilled Yoghurt and Dill Cucumber Soup 3.70 ADD
Tandoori King Prawns 6.80 ADD
Vegetable Pakoras 3.30 ADD
Fresh Fruit Charte 3.80 ADD
Paneer Tikka Kebab 4.10 ADD
Fingers of Seasonal Melon 3.80 REMOVE
Click HERE to modify quantities in your cart.
Total: 3.80
Do you want to Checkout?
Items selected by the user, are placed into the cart.
Register Login My Account Logout

Figure 5.8

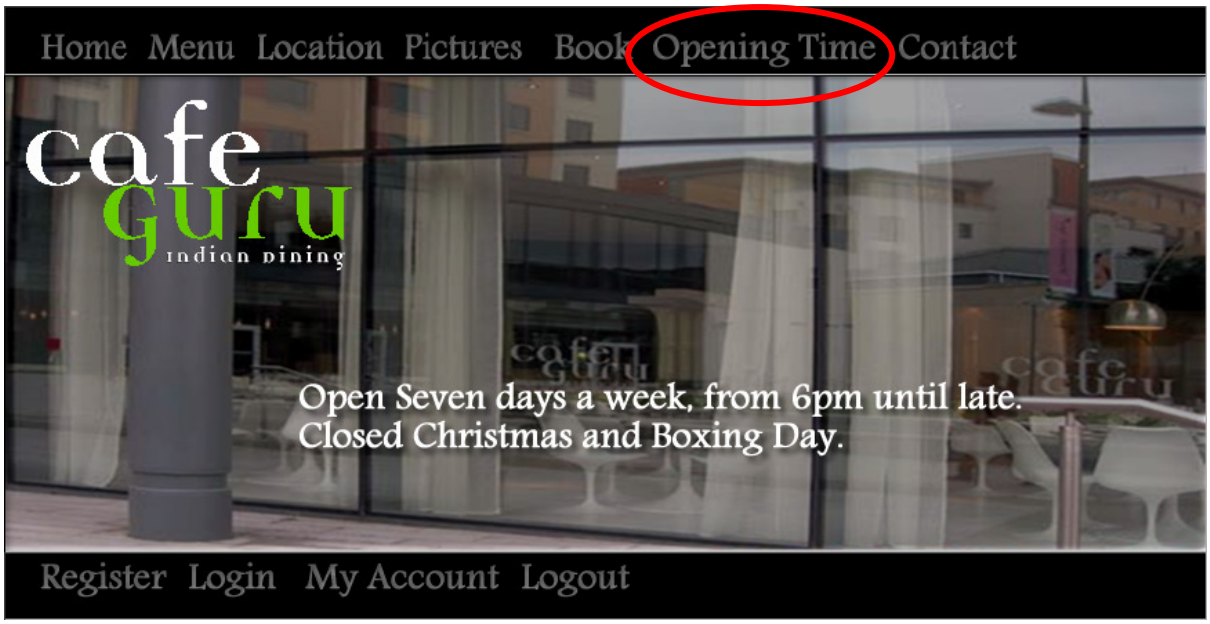

Home Menu Location Pictures Book Opening Time Contact
cafe
guru
indian dining
Open Seven days a week, from 6pm until late.
Closed Christmas and Boxing Day.
Register Login My Account Logout

Figure 5.9

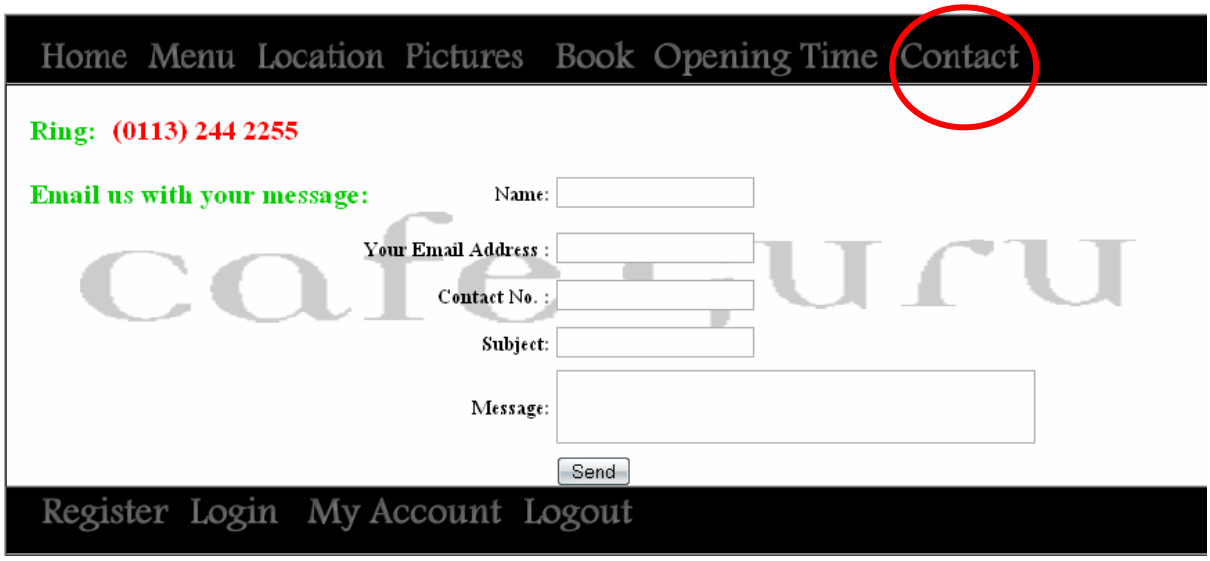


Figure 5.10

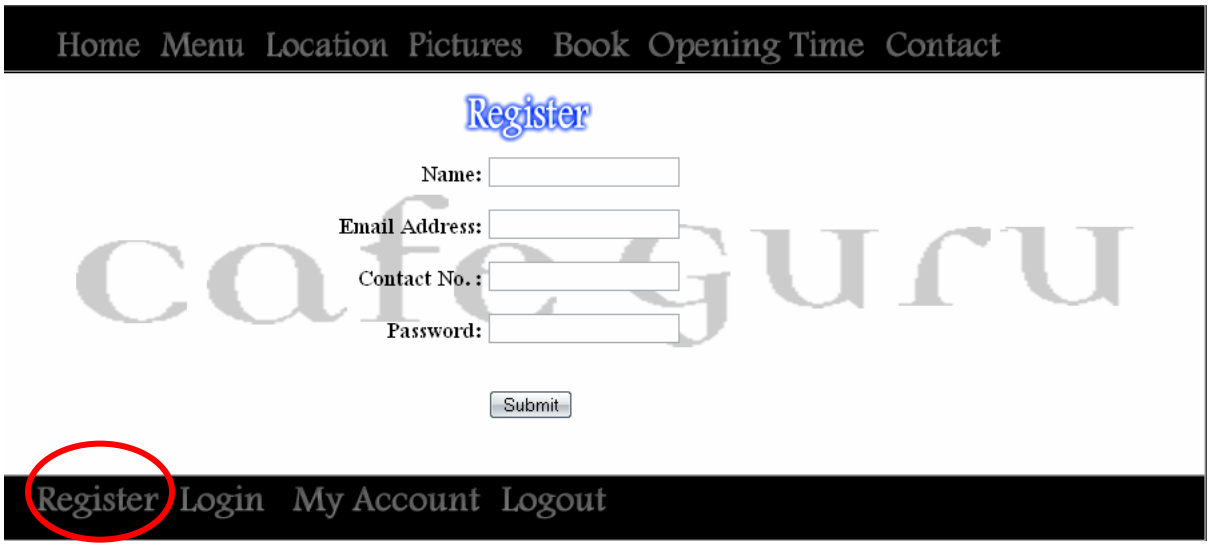


Figure 5.11

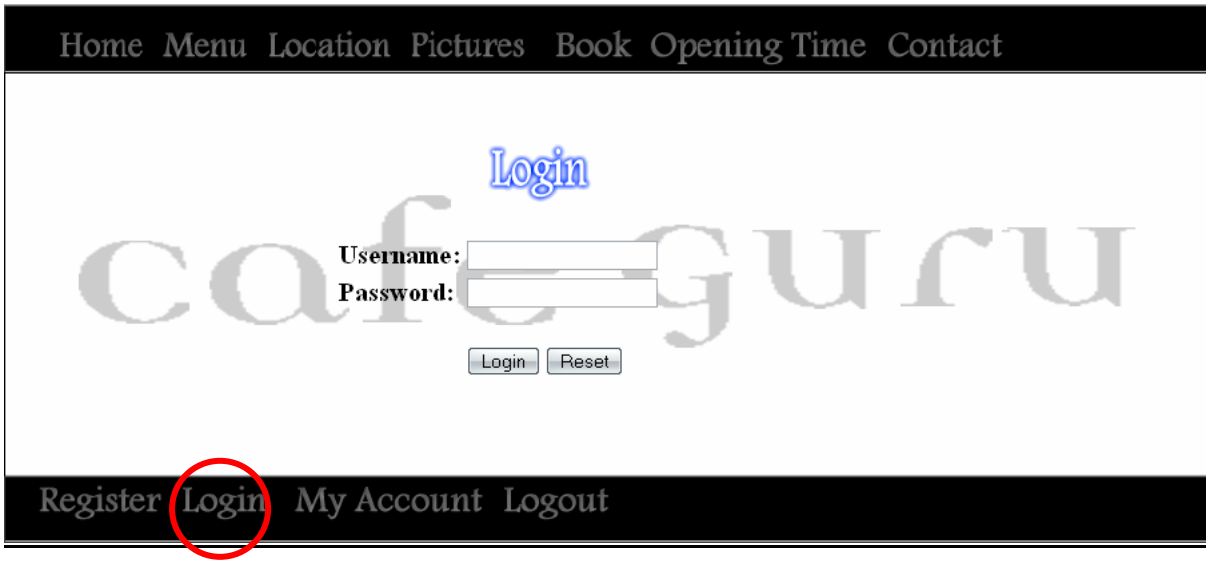


Figure 5.12

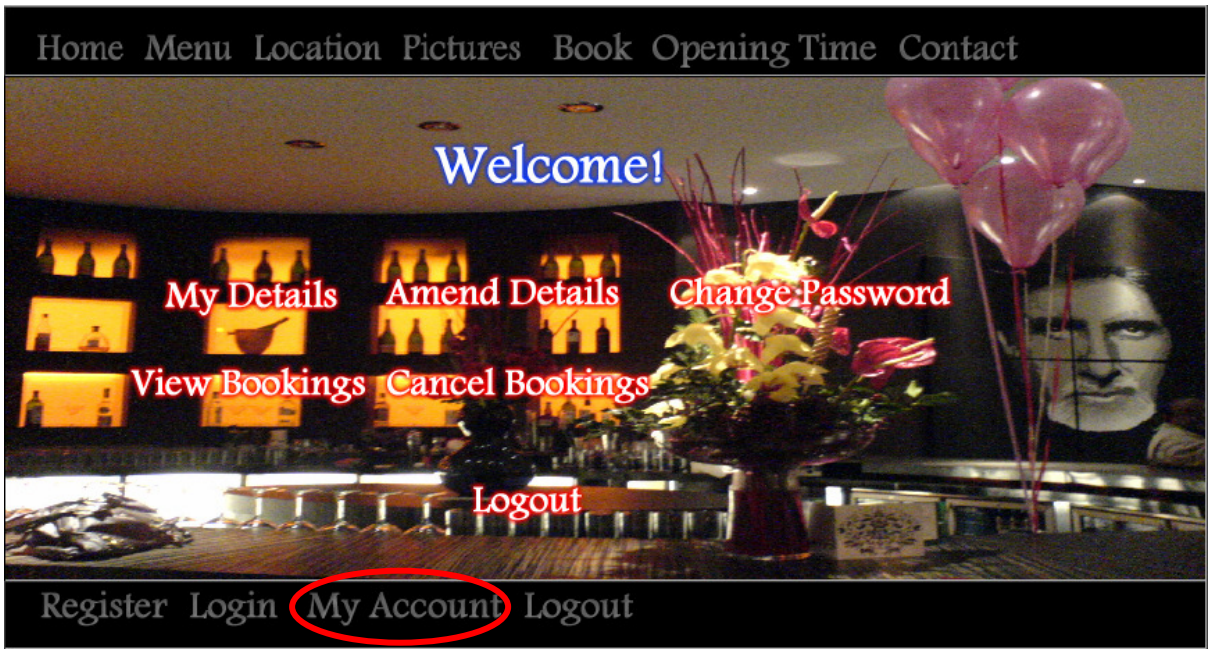


Figure 5.13

Home Menu Location Pictures Book Opening Time Contact
Logout
You have Logged out ...
If you like to login again please Click Here
Register Login My Account Logout

Figure 5.14

PHP Code

Login

LoginSuccessful.php

```
<?php session_start();
require_once('odbc.php');
$login_usrname=$_POST['usrname'];
$login_pwd =$_POST['pwd'];
?>

<?php
        if ((!empty($login_usrname)) && (!empty($login_pwd))){
        $dbConn = odbc_connect("CafeGuruDBConnection","","");
        $query      =   "SELECT   *   FROM   Login   WHERE   (USERNAME='$login_usrname')   and
(PASSWORD='$login_pwd')";
        $exec   = odbc_Exec($dbConn,$query,1);
        $rows   = 0;
        while (odbc_fetch_row($exec)){
        $rows++;
        }
        if ($rows>0) {
                $logname=$login_usrname;
                session_register("logname");
                $_SESSION['loginD'] = $login_usrname;
                echo "<b>$logname logged in</b><br>";
                echo "<a href='myAccount.php'>Proceed to My Account...</a><br>";
                echo "<a href='logout.php'>Logout</a>";
                }else{
                echo "<font color=#FF0000><b>Sorry Can't Log You In !!!</b><br><a href='login.php'>back to
        login page</a></font>";
                }
        }else{
        echo "<font color=#FF0000><b>An empty Field found!!!</b><br><a href='login.php'>back to login
page</a></font>";
}
?>
```

Logout

Logout.php

```
<?php
            if (session_is_registered("logname")){
            session_unregister("logname");
            session_destroy();
            echo "<font color=#FF0000><strong>You have Logged out ...</strong></font><br>";
            echo "<strong>If you like to login again please <a href='login.php'>Click Here</a></strong>";
            }
            else{
           echo "<font color=#FF0000><b>You are not logged in... Please <a href='login.php'>Login</a></font>";
           }
?>
```

Amend Details PHP Code

```
<?
if (session_is_registered("logname")){
require_once('odbc.php');
$logusr = $_SESSION['loginD'];
        if ((!empty($HTTP_POST_VARS['new_Name'])) && (!empty($HTTP_POST_VARS['new_Email'])) &&
(!empty($HTTP_POST_VARS['new_ContactNo']))){    $new_Name = $HTTP_POST_VARS['new_Name'];
        echo $new_Name;
        $new_Email = $HTTP_POST_VARS['new_Email'];
        $new_ContactNo = $HTTP_POST_VARS['new_ContactNo'];

        $query1 = "update Customer set
        Name = '".$new_Name."',
        Email = '".$new_Email."',
        ContactNo = '".$new_ContactNo."'
        where Customer.Email = '".$_SESSION['loginD']."'
        ";
        odbc_exec($odbc, $query1);
        $query2 = "update Login set
        Username = '".$new_Email."'
```

```
        where Login.Username = '".$_SESSION['loginD']."'
        ";
        odbc_exec($odbc, $query2);
        $message ='Your details have been updated successfully!';
        echo $message;
        }
        else
        {
        echo "<font color=#FF0000><b> fields are empty!!! </b></font>";
        }
        odbc_close($odbc);
        }
        else{
        echo "<font color=#FF0000><b>You are not logged in... Please <a href='login.php'>Login</a></font>";
        }
?>
```

Email Confirmation

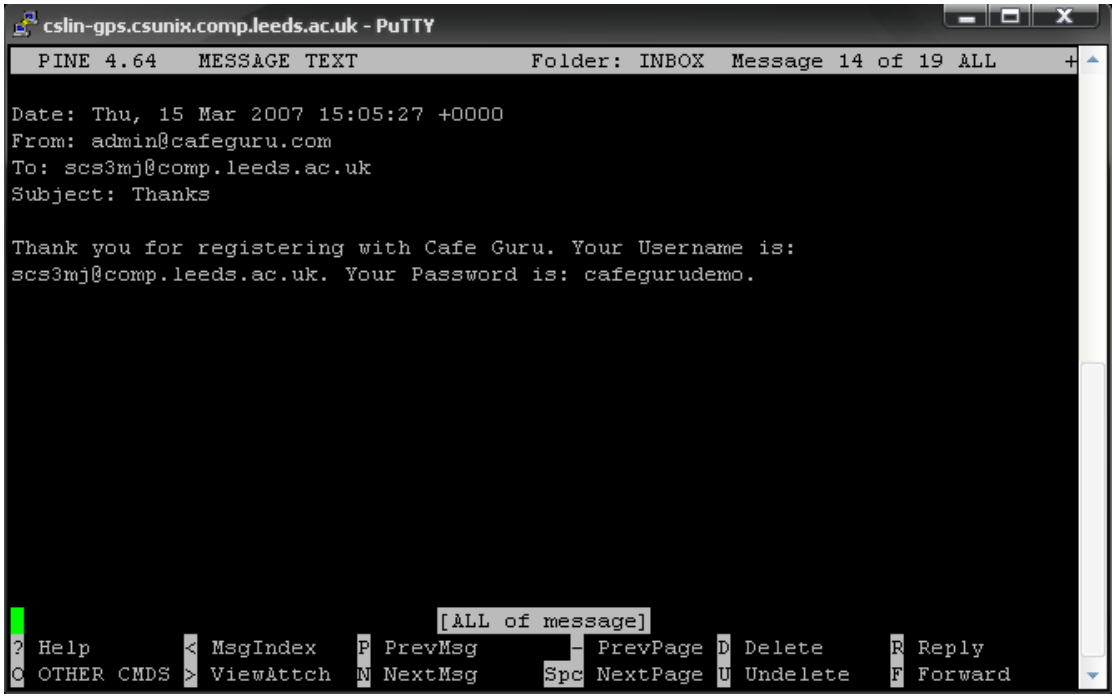


Figure 5.15

Data Extraction Code

```
$query = "insert into Customer(Name, Email, ContactNo) values(
        '$Name',
```

```
            '$Email',
            '$ContactNo')";
            odbc_exec($odbc, $query) or die (odbc_errormsg());

$query = odbc_exec($odbc, "(DELETE FROM BookingTable
WHERE((BookingTable.BookingNo)=".$CancelBooking."))");


$query1 = "update Customer set
                        Name = '".$new_Name."',
                        Email = '".$new_Email."',
                        ContactNo = '".$new_ContactNo."'
                        where Customer.Email = '".$_SESSION['loginD']."' ";

$query = odbc_exec($odbc, "(SELECT MenuItems.* FROM MenuItems WHERE
((MenuItems.ItemType)='Starters'))");
```

Shoppping Cart

Cart.php

```
<?
require_once("MenuItemsList.php");
session_start();
session_register("items");//reg var
//session_register("category_choice");
session_register("total");

//initalise it if not set
//if no value then initilise
//if yes then dont.
if(!isset($_SESSION['items'])) {
            $items = array();
            echo 'items not set';
}
//if(!isset($category_choice)) {
//          $category_choice=1;
```

```
//}

/*************** MAIN ***************/
head();
require_once('odbc.php');
//select_cat();
$status = "shopping";
?>
<table width="78%" border="1" cellspacing="10" cellpadding="10" height="371" bordercolor="#0000FF"
bgcolor="#999999">
<tr align="left" valign="top">
<td bgcolor="#CCCCCC" bordercolor="#0000FF">
<table width="542" border="0" cellpadding="10">
  <tr><td width="290" valign=top>
<?

//$
if(isset($_GET['update_cart'])) {
        echo $_GET['update_cart'];
        foreach($items_in as $item => $val) {
                        if($val < 0) {
                        unset($items_in[$item]); //unset php ...takes item in $item=item name
                        echo 'items_in'.$items_in.";
                        echo 'item'.$item.";
                        echo 'val'.$val.";
                }
        }
        $items = $items_in;
}

//recognise itemview ok...get.do echo
if(isset($itemview)) {
        echo 'Itemview:'.$itemview.";
        full_item($itemview, $items);
} else {
        display_items($items);
        echo $items;
```

```
}

//this is the prob
//echo items here.....one item to array...probably need to push to array (array_push)
//more then one item on array
if(isset($_GET['action'])) {
        $action = $_GET['action'];
        $item = $_GET['item'];
        //items is array
        //alter function
        $items = alter_cart($items, $item, $action);
}
?></td><td width="206" valign=top>
<h3>Your Cart:  </h3>
<h3>
  <?
//within this echo $modify nothing will come up!!!
//check $modifty is assign properly
if(isset($modify)) {
        edit_cart($items);
} else {
        display_cart($items);
}
?>
</h3>
<p>
<?

if(sizeof($items) > 0) {
        $total = calculate_total($items);
        //print_r($items);
        ?>
        <p>Do you want to <a href="<?=SECURE_URL?>checkout.php"><b>Checkout</b></a>?
        <?
}
?>
</td></tr></table>
```

```
</td>
</tr>
</table>
</div>
</body>
</html>

MenuItemsList.php
<?php session_start();
require_once('odbc.php');

/*function errortrap($query) {
	if(DB::isError($query)) {
		?><h3>There was an error!</h3><?
		die($query->getMessage());
	}
} //end errortrap*/

//this is where i am doing to add items
//prob more likey here
function alter_cart($items, $item, $action) {
	global $odbc;
	echo 'items:'.$_GET[$items].";
	//echo 'item:'.$item.";
	//echo 'action:'.$action.";
	//echo ...
	$query = odbc_exec($odbc, "SELECT * FROM MenuItems WHERE ItemName = '$item'") or die
(odbc_errormsg());
	//errortrap($query);
	if(odbc_fetch_array($query) > 0) {
		switch($action) {
			case("add"): //within this, need to echo $items start and end.
				echo 'isi:'.$items[$item].";
				if(!isset($items[$item])) {
					$items[$item] = 0;
				}
				$items[$item]++;
```

```
                                        break;
                                case("remove"):
                                        if(isset($items[$item])) {
                                                $items[$item]--;
                                        }
                                        if($items[$item] < 1) {
                                                unset($items[$item]);
                                        }
                                        break;
                                default:
                                        break;
                        }
                }
        return $items;
} //end alter_cart

function head() {
        ?>
        <html>
        <head>
        <style type=text/css>
        h1, h2, h3, p, td {font-size: 10pt; font-family: verdana, sans-serif; }
        .tablehead {font-size: 10pt; color: #FFFFFF; background-color: #000099; }
        .required {font-weight: bold; color: red; }
        .smalli {font-size: 8pt; font-style: italic;}
        .style1 {font-size: 14px}
   </style>
        </head>
        <body bgcolor="#FFFFFF">
        <div align=center>
        <table width="74%" border="0" cellspacing="0" cellpadding="0" height="128" bgcolor="#FFFFFF">
     <tr>
       <td height="134" align="center"><h1>Place Your Order</h1></td>
     </tr>
   </table>
        <?
}
```

```
function calculate_total($items) {//**********************unsure*******************//
	global $odbc;
	$total = 0;
	foreach($items as $item => $val) {
		$query = odbc_exec($odbc, "SELECT * FROM MenuItems where ItemName =
'$item'") or die (odbc_errormsg());
		//errortrap($result);
		$r = odbc_fetch_array($query);
		$total+= ($r["Price"] * $val);

	}
	/*if($total != 0) {
		$total = $total + $shipping;
	}*/
	return $total;
} //end calculate_total

function display_cart($items) {
	global $odbc;
	global $items, $status;
	$count = 0;
	?>
	<table width="348" border=1 cellpadding=5 cellspacing=0>
	<tr><td width="183" class=tablehead>Name</td>
	<td width="24" class=tablehead>Qty</td>
	<td width="37" class=tablehead>Price Each</td>
	<td width="54" class=tablehead> </td>
	</tr>
	<?
	foreach($items as $item => $val) {

		$query = odbc_exec($odbc, "SELECT * FROM MenuItems WHERE ItemName =
'$item'") or die (odbc_errormsg());
		//errortrap($result);
		$r = odbc_fetch_array($query)
		?>
```

```
                        <tr><td><?=$r["ItemName"]?></td><td><?=$qty?></td><td><?=$r["Price"]?></td>
                        <?
                        if($status == "checkout") {
                                echo "<td> </td>";
                        } else {
                                ?>
                                <td><a
href="<cart.php?item=<?=$r["ItemName"]?>&action=remove">REMOVE</a></td>
                                <?
                        }
                        ?>
                        </tr>
                        <?
                        $count++;

        }
        if($count == 0) {
                $items= array();
                ?>
                <tr><td colspan=4><h3>Your Cart Is Empty!</h3></td><tr>
                <?

        }
        $total = calculate_total($items);
        ?>
        <tr><td colspan=3></td><td><?=$shipping?></td></tr>
        <tr><td class=smalli>
        <?
        if($status != "checkout") {
                if($count > 0) {
                        //sending varible modify with value bulk to cart.php in header as get varible with
modify. cart.php - u cant read modift value should be bulk....test $modifty
                        ?>Click <a href=cart.php?modify=bulk">HERE</a> to modify <br>quantities in your
cart.<?
                }
        }
        ?>
```

```
		 </td><td colspan="2" align="right">Total:</td><td>
		<?
		printf("%.2f", $total);
		?></td></tr></table><?
}//end display_cart

function display_items($items) {
		global $odbc;
		$query = odbc_exec($odbc, "SELECT * FROM MenuItems") or die (odbc_errormsg());
		//errortrap($query);
		if(odbc_fetch_array($query) > 0) {
			?>
			<h2 class="style1">Avialable Items In This Category:</h2>
			<table width="349" border=1 cellpadding=5 cellspacing=0>
			<tr><td width="210" class=tablehead>Name</td>
			<td width="51" class=tablehead>Price</td>
			<td width="50" class=tablehead> </td>
			</tr>
			<?
			while($r = odbc_fetch_array($query)) {
				?>
				<tr><td><a
href="cart.php?itemview=<?=$r["ItemID"]?>"><?=$r["ItemName"]?></a></td>
				<td><?=$r["Price"]?></td>
				<td>

					<a href="cart.php?item=<?=$r["ItemName"]?>&action=add">ADD</a>

				</td></tr>
				<?
			}
			?>
		</table>
			<?
		} else {
			echo "<h3>Select A Category Above</h3>";
		}
```

```
} //end display_items?>

<? function edit_cart($items) {
                global $odbc;
        ?>
        <form action=cart.php method=post>
        <table border=1 cellpadding=5 cellspacing=0>
        <tr><td class=tablehead>Name</td><td class=tablehead>Price Each</td><td
class=tablehead>Qty</td></tr>
        <?
        foreach($items as $item => $val) {
                $query = odbc_exec($odbc, "SELECT * FROM MenuItems") or die
(odbc_errormsg());
                //errortrap($query);
                $r = odbc_fetch_array($query);
                echo $r;
                ?>
                <tr><td><?=$r["ItemName"]?></td><td><?=$r["Price"]?></td>
                <td>
                <input type="text" name="items_in[<?=$item?>]" value="<?=$qty?>" size="3">
                </td></tr>
                <?

        }
        ?>
        </table>
        <input type="submit" name="update_cart" value="Update Cart">
        </form>
        <?
} //end edit_cart

//odbc_close($odbc);

?>
```

Database

Tables & Relationships

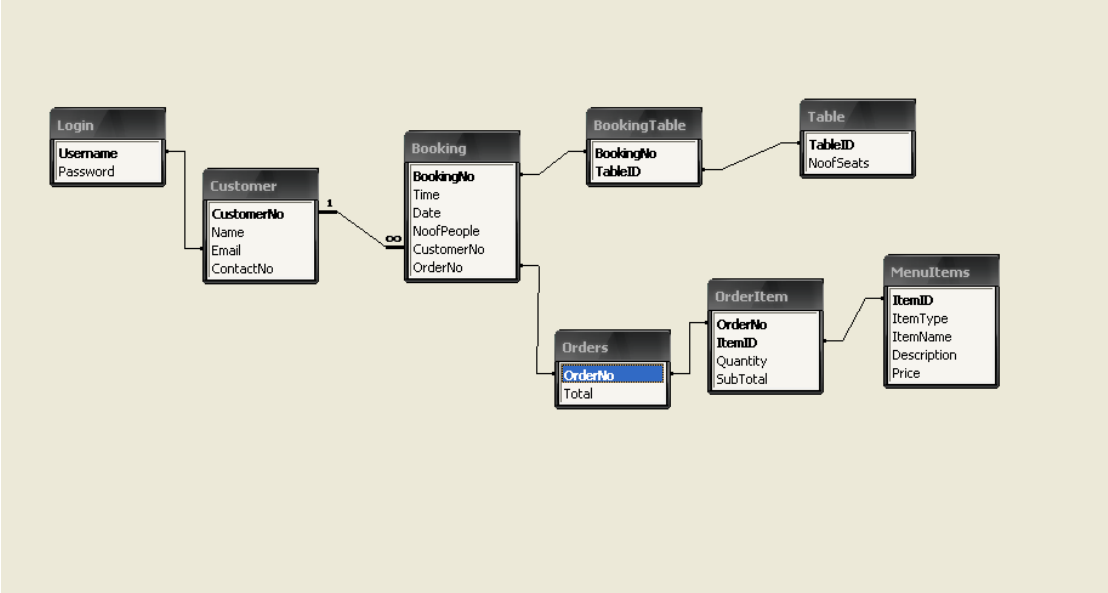


Figure 5.16

Queries

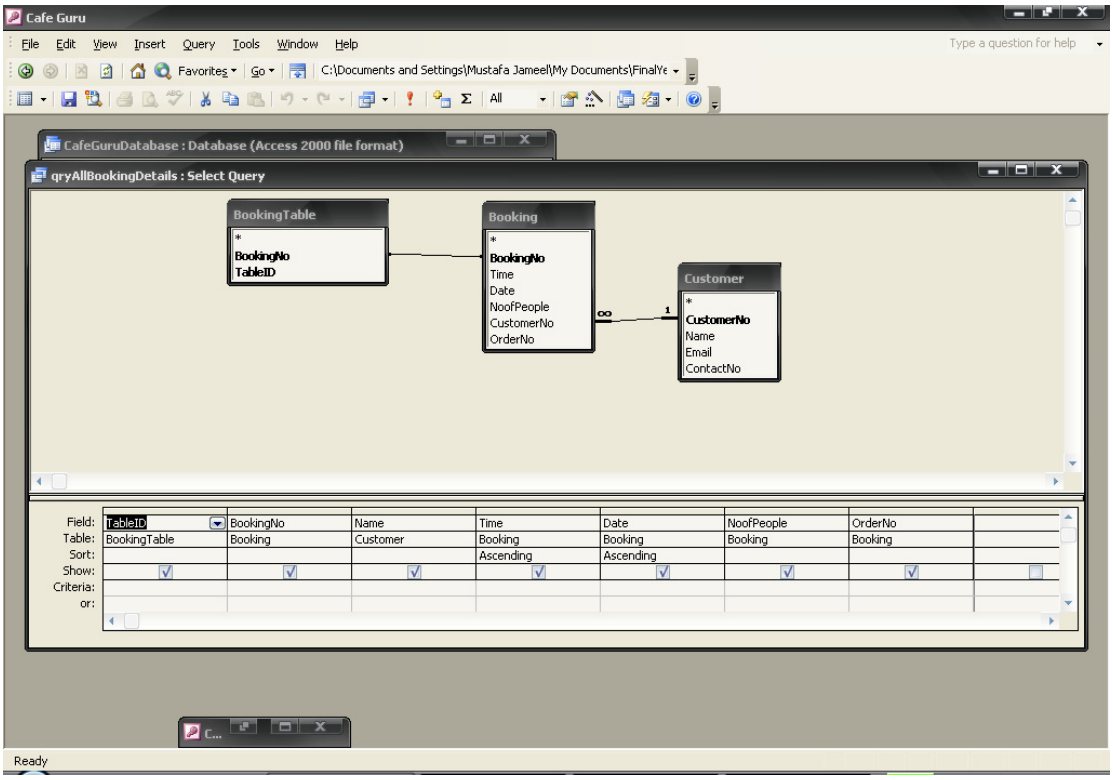
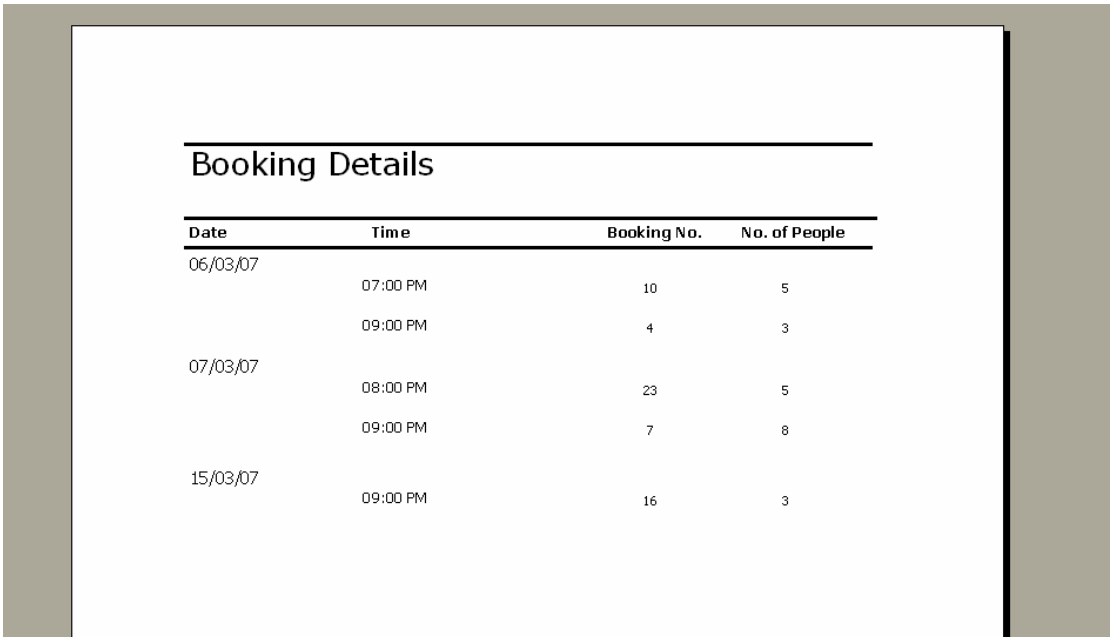


Figure 5.17



Booking Details

Date	Time	Booking No.	No. of People
06/03/07			
	07:00 PM	10	5
	09:00 PM	4	3
07/03/07			
	08:00 PM	23	5
	09:00 PM	7	8
15/03/07			
	09:00 PM	16	3

Figure 5.18

Reports

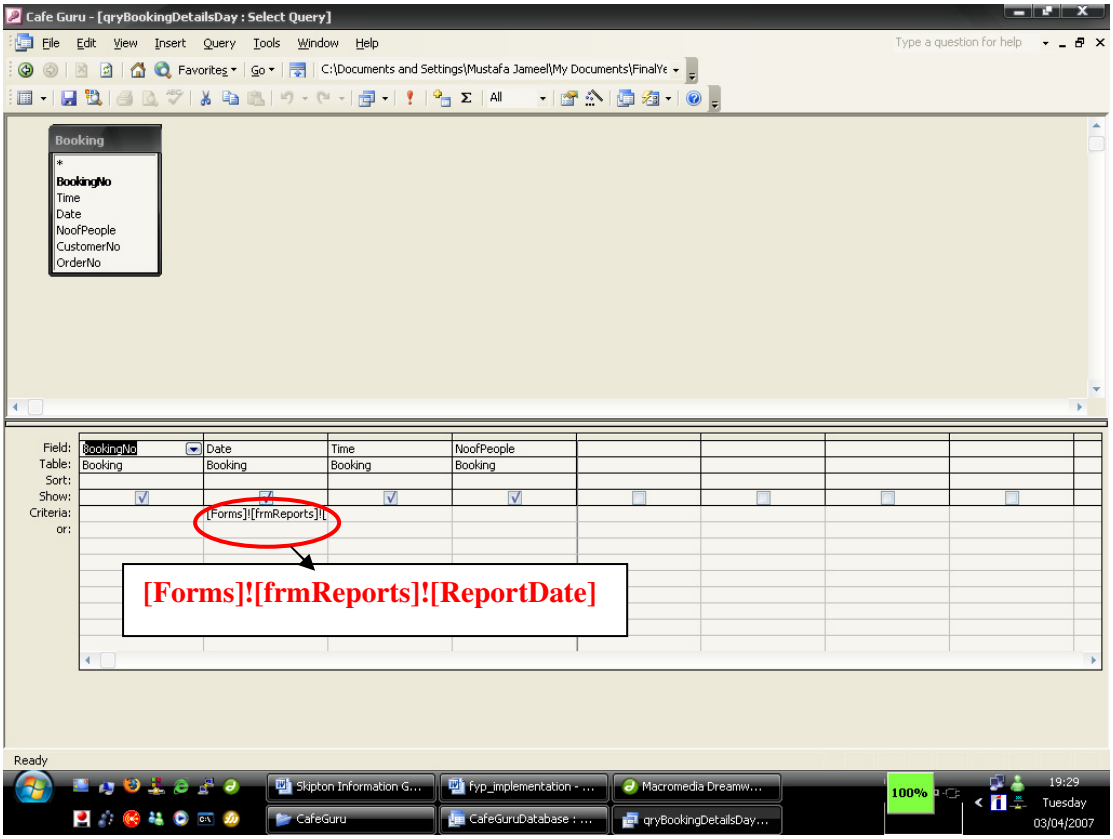


Figure 5.19

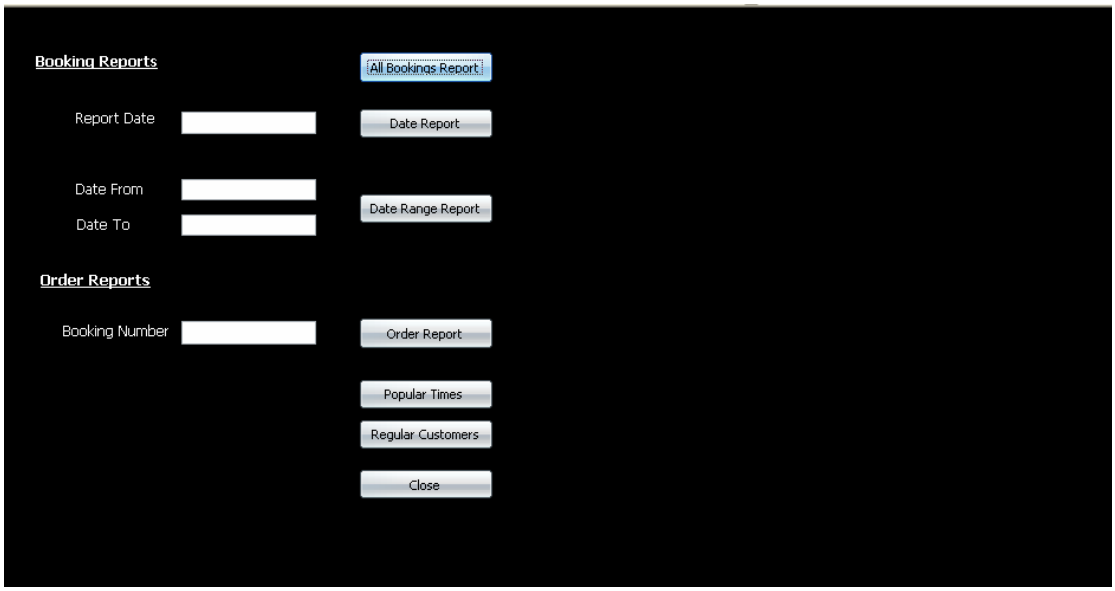


Figure 5.20

Forms

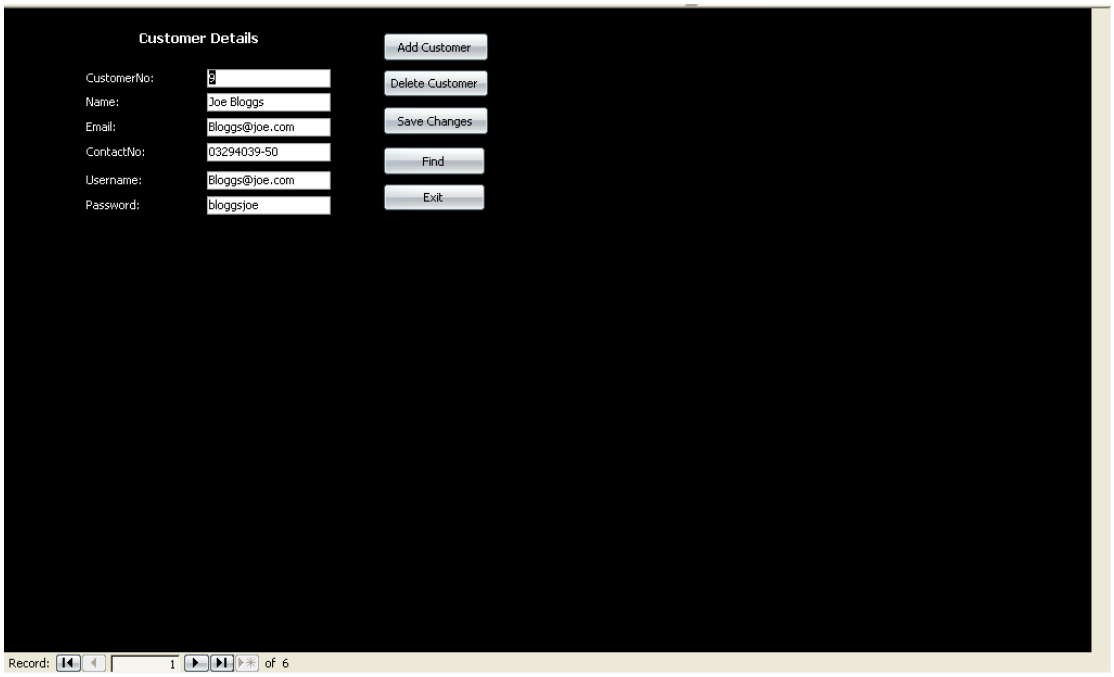


Figure 5.21

Figure 5.22

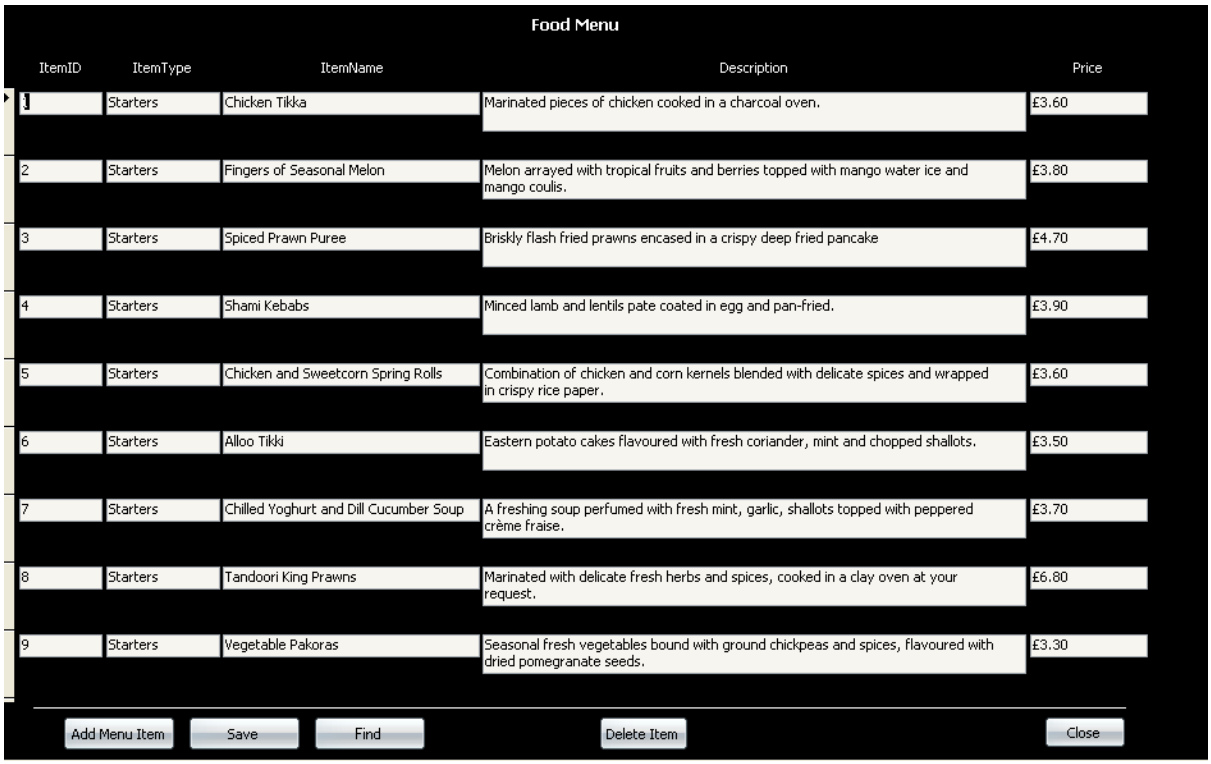


Figure 5.23

Appendix F- Testing

Website

Navigation Menu

Test	Test Data	Expected Result	Success?	Further Actions needed.
Go to Home page	Click Button	Taken to Home Page	✓	
Go to Menu Page	Click Button	Taken to Menu Page	✓	
Go to Location Page	Click Button	Taken to Location Page	✓	
Go to Pictures Page	Click Button	Taken to Pictures Page	✓	
Go to Book Page	Click Button	Taken to Book Page	✓	
Go to Opening Times Page	Click Button	Taken to Opening Times Page	✓	
Go to Contact Page	Click Button	Taken to Contact Page	✓	
Go to Register Page	Click Button	Taken to Register Page	✓	
Go to Login Page	Click Button	Taken to Login Page	✓	
Go to My Account page, when not logged in	Click Button	Re-directed to Login Page	✓	
Go to My Account page, when logged in	Click Button	Taken to My Account Page	✓	
Go to Logout Page, when not logged in	Click Button	Not logged in message	✓	
Go to Logout Page, when logged in	Click Button	Logout successful message	✓	

Menu Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Menu Categories displayed		Menu item categories buttons displayed	✓	
Go to Starters	Click Button	Display Starters	✓	
Go to Main Courses	Click Button	Display Main Courses	✓	
Go to Specialities	Click Button	Display Specialities	✓	
Go to Side Dishes	Click Button	Display Side Dishes	✓	

Go to Rice	Click Button	Display Rice	✓	
Go to Breads	Click Button	Display Breads	✓	
Menu Item details displayed		Menu Item Name, Price plus description	✓	
Check All menu items are displayed		All menu items should be displayed	✓	

Location Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Location Details		Address and Map	✓	
Direction to restaurant	Postcode: LS8 5QF	Directions to restaurant given	✓	

Book Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Graphical layout displayed		Graphical layout displayed	✓	
Check all field have been completed	-blank fields-	Error message	✗	Add php check before availability check
Check availability	04/03/07, 6pm,	All Tables Available	✓	
Book table	04/03/07, 6pm, table 4	Booking Successful	✓	
Check availability	04/03/07, 6pm,	All table except table 4 available	✓	
Try booking table already booked	04/03/07, 6pm, table 4	Table can not be booked	✓	
Click table Available	Click table on graphic image	Taken to confirm booking screen	✓	
Correct table displayed on confirmation screen	Click on table 4	Check table 4 is listed as table on confirmation	✓	
Email sent on successful booking	04/03/07, 6pm, table 2	Booking successful, email containing booking details	✓	
Check Email contains details of booking	04/03/07, 6pm, table 2	Received Email containing correct details of booking	✓	

Contact Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Contact Details		Telephone number	✓	
Email form		Email form displayed and allows data entry.	✓	
Submit button	Click button	Performs query	✓	
Complete Email form	Mustafa Jameel, scs3mj@leeds.ac.uk, 07748857107, Bank holidays, Are you open on bank holidays?	Email sent	✓	
Email Received with details	Mustafa Jameel, scs3mj@leeds.ac.uk, 07748857107, Bank holidays, Are you open on bank holidays?	Email with users question	✓	

Registration Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Completed Registration form	Mustafa Jameel, scs3mj@comp.leeds.ac.uk, 07748857107, cafeguru,	Successful Registration	✓	
Empty fields	-blank field-	Error Message	✗	Add php check before availability check.
Check Submit button works	Click button	Submit action performed	✓	

Login Page

Test	Test Data	Expected Result	Success?	Further Actions needed.

Incorrect Username	Jameel Mustafa	Error	✓	
Incorrect Password	Password	Error	✓	
Correct Username, Incorrect Password	Scs3mj@comp.leeds.ac.uk Password	Error	✓	
Incorrect Username, Correct Password	Scs3mj@leeds.ac.uk Cafeguru	Error	✓	
Correct Username and Password	Scs3mj@comp.leeds.ac.uk Cafeguru	Login Successful	✓	
No details entered	-Blank fields-	Error	✓	
Check Submit button works	Click button	Submit action performed	✓	

My Account Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Cannot Access Page without successful login	Click on 'My Account' Link	Re-direct to login page	✓	
My Account Accessed	Login the click on 'My Account' link	Access My account page	✓	
Go to My Details page	Click button	Taken to My Details page.	✓	
Go to Amend Details Page	Click button	Taken to Amend Details Page	✓	
Go to Change Password Page	Click button	Taken to Change Password Page	✓	
Go to View Bookings Page	Click button	Taken to View Bookings Page	✓	
Go to Cancel Bookings Page	Click button	Taken to Cancel Booking Page	✓	
Logout	Click button	Successful logout message shown	✓	

View My Details Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Customer Details Displayed		Customer details on page	✓	
Details for logged in user correctly displayed		Customer details on page	✓	
Check link to Amend details	Click link	Taken to Amend details page	✓	

Amend Details Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Input form displayed		Form for input data displayed	✓	
Input new data	Mustafa Jameel, scs3mj@comp.leeds.ac.uk, 07708811626,	Input excepted	✓	
Submit button test	Click button	Data to be inputted correctly into the database	✓	
Change to relevant record in database	Mustafa Jameel, scs3mj@comp.leeds.ac.uk, 07708811626,	The record for Mustafa Jameel to change for telephone field.	✓	
All fields not completed	-blank fields-	Error fields are empty	✓	
One field not completed	Mustafa Jameel, -blank field-, 07708811626	Error fields are empty	✓	

Change Password Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Input form displayed		Form for input data displayed and allows input	✓	
All fields not completed	-blank fields-	Error fields are empty	✓	

Old password incorrect	Password, newpassword	Error old password incorrect	✓	
Old password correct, new password correct	Cafeguru, cgpwd, cgpwd	Successful password update message shown	✓	
New password entered twice to confirm	Cafeguru, cgpwd, cgpassword	Error new passwords do not match	✓	
Submit button test	Click button	Data to be inputted correctly into the database	✓	
Change to relevant record in database		Password for Mustafa Jameel in login table to change	✓	

View Bookings Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Bookings Displayed		Booking Details	✓	
Correct Bookings for logged in user		Correct Booking Details	✓	
Scroll Area		Scroll down to view further bookings	✓	

Cancel Booking Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Enter booking number to cancel	2	Booking Cancelled	✓	
Empty Field	-blank field-	Error field empty	✓	
Submit Button	Click	Perform query action	✓	
Delete Booking from Database	2	Booking record removed from booking table and bookings.	✓	
Enter Booking number for logged in user	2	Booking Cancelled	✓	
Enter Booking number not for logged in user	12	Error message	✓	

Logout Page

Test	Test Data	Expected Result	Success?	Further Actions needed.
Logout when user is logged in	Click Button	Successful logout of system	✓	
Logout when user is not logged in	Click Button	Error message informing user is not logged in	✓	

Database

Navigation Menu Form

Test	Test Data	Expected Result	Success?	Further Actions needed.
Customer Details button	Click Button	Customer Details form open	✓	
Booking Details button	Click Button	Booking Details form open	✓	
Food Menus button	Click Button	Food Menus form open	✓	
Reports button	Click Button	Reports form open	✓	
Order Details button	Click Button	Order Details form open	✓	
Tables button	Click Button	Tables form open	✓	
Exit button	Click Button	Close Database	✓	

Customer Details Form

Test	Test Data	Expected Result	Success?	Further Actions needed.
Add Customer button	Click Button	Clear form for new entry.	×	Does not clear boxes to allow new record to be entered.
Delete Customer button	Click Button	Record should be removed.	✓	
Save Changes button	Click Button	Saves changes made to record	×	Does not allow editing records to make changes.
Find button	Click Button	Find box opens	✓	
Exit	Click Button	Closes window returning to menu	✓	

Booking Details Form

Test	Test Data	Expected Result	Success?	Further Actions needed.
Add Booking button	Click Button	New record entered.	✓	
Delete Booking button	Click Button	Record should be removed.	✓	
Save Booking button	Make change to record and click button	Saves changes made to record	✓	
Find button	Click Button	Find box opens	✓	
Close Button	Click Button	Closes window returning to menu	✓	

Food Menu Form

Test	Test Data	Expected Result	Success?	Further Actions needed.
Add Food Menu button	Click Button	New record entered.	✓	
Delete Food Menu button	Click Button	Record should be removed.	✓	
Save button	Make change to record and click button	Saves changes made to record	✓	
Find Item button	Click Button	Find box opens	✓	
Close Button	Click Button	Closes window returning to menu	✓	

Reports Form

Test	Test Data	Expected Result	Success?	Further Actions needed.
All Bookings Report button	Click Button	Report showing all reports shown	✓	
Date Report	04/03/07	Report showing all bookings on 04/03/07	✓	
Date Report if no date is entered	-Blank field-	Error- Please enter a date	✓	
Date Range Report	04/03/07 – 11/03/07	Report showing all bookings between given dates	✓	

Date Range Report if no dates is entered	-Blank fields-	Error- Please enter a date	✓	
Date Range Report if only one date is entered	-Blank field-, 04/03/07	Error- Please enter a date	✓	
Date Format	04.03.07	Error	✓	Date excepted my system but blank report as date does not match format in records
Order Report	2	Report showing order for booking	✓	
Order Report if no booking number is entered	-blank field-	Error – Enter Booking Number	✓	
Popular Times button	Click Button	Report showing number of bookings for each time slot	✓	
Correctly shown popular times report data		Report with correct data accords to the data in database	✓	
Regular Customers report	Click Button	Report showing which customers book most often	✓	
Close Button	Click Button	Closes current window and returns back to menu	✓	

Order Details Form

Test	Test Data	Expected Result	Success?	Further Actions needed.
Add Order button	Click Button	Clear form for new entry.	✗	Does not clear boxes to allow new record to be entered.
Delete Order button	Click Button	Record should be removed.	✓	
Save Order button	Click Button	Saves changes made to record	✗	Does not allow editing records to make changes
Find button	Click Button	Find box opens	✓	
Exit	Click Button	Closes window returning to	✓	

		menu		

Tables Form

Test	Test Data	Expected Result	Success?	Further Actions needed.
Add Tables button	Click Button	New record entered.	✓	
Delete Tables button	Click Button	Record should be removed.	✓	
Save button	Make change to record and click button	Saves changes made to record	✓	
Find button	Click Button	Find box opens	✓	
Close Button	Click Button	Closes window returning to menu	✓	

Appendix G – Evaluation

Results from Customer Feeback

Café Guru Website Customer Evaluation Questionnaire Results

Question	Excellent	Above Average	Average	Below Average	Poor
Initial look of the website?	**6**				
How good is it to navigate around the site?	**5**	1			
What do you think of the colour scheme?	3	3			
How good was it to find the content you were looking for?	**3**	2	1		
Was the language clear and Understandable?	**5**		1		
How was the overall layout and design of the site?	**5**	1			
Was all the content appropriate?	**4**	2			
How was the layout of the 'My Account' page?	1	**3**	1	1	
How was the design and layout of the forms in the website?	1	**4**	1		
Was all inputs required made obvious from the webpage?	2	2	1	1	
Were the error messages informative and clear?	1	**3**	1		1
What do you think of the booking process?	**3**	1	2		
How well does the graphical layout work for its purpose?	**5**	1			
What do you think of the email confirmations?	**5**		1		
What did you think of the pre-ordering of food? *(shopping cart)*	**3**	2	1		
The most positive thing about the site.					
The most negative thing about the site.					
State any suggestions of improvements.					

Customer Feedback Forms

Café Guru Website Customer Evaluation Questionnaire

Thank you for participating in the evaluation of the Café Guru website. Your evaluation as a customer is very important and will allow the success of the website to be determined. Please could you complete the below table following the instructions below as accurately as possible.

Please place **ONE** tick for each row of questions to indicate your choice of evaluation for that question.

Name:	Anjum Noreen
Signature:	*Anjum Noreen*

Question	Excellent	Above Average	Average	Below Average	Poor
Initial look of the website?	x				
How good is it to navigate around the site?	x				
What do you think of the colour scheme?		x			
How good was it to find the content you were looking for?		x			
Was the language clear and Understandable?	x				
How was the overall layout and design of the site?	x				
Was all the content appropriate?		x			
How was the layout of the 'My Account' page?		x			
How was the design and layout of the forms in the website?		x			
Was all inputs required made obvious from the webpage?		x			
Were the error messages informative and clear?		x			
What do you think of the booking process?		x			
How well does the graphical layout work for its purpose?	x				
What do you think of the email confirmations?	x				
What did you think of the pre-ordering of food? *(shopping cart)*		x			
The most positive thing about the site.	Being able to book online				
The most negative thing about the site.	n/a				
State any suggestions of improvements.					

Please return to: Mustafa Jameel, scs3mj@comp.leeds.ac.uk.

Café Guru Website Customer Evaluation Questionnaire

Thank you for participating in the evaluation of the Café Guru website. Your evaluation as a customer is very important and will allow the success of the website to be determined. Please could you complete the below table following the instructions below as accurately as possible.

Please place **ONE** tick for each row of questions to indicate your choice of evaluation for that question.

Name:	Shabnam Noreen
Signature:	*Shabnam Noreen*

Question	Excellent	Above Average	Average	Below Average	Poor
Initial look of the website?	X				
How good is it to navigate around the site?	X				
What do you think of the colour scheme?		X			
How good was it to find the content you were looking for?	X				
Was the language clear and Understandable?	X				
How was the overall layout and design of the site?	X				
Was all the content appropriate?		X			
How was the layout of the 'My Account' page?			X		
How was the design and layout of the forms in the website?		X			
Was all inputs required made obvious from the webpage?		X			
Were the error messages informative and clear?		X			
What do you think of the booking process?	X				
How well does the graphical layout work for its purpose?	X				
What do you think of the email confirmations?	X				
What did you think of the pre-ordering of food? *(shopping cart)*	X				
The most positive thing about the site.	Overall functionality and information provided, easy to use				
The most negative thing about the site.	No option to increase font size for the menu on the site.				
State any suggestions of improvements.	None				

Please return to: Mustafa Jameel, scs3mj@comp.leeds.ac.uk.

Café Guru Website Customer Evaluation Questionnaire

Thank you for participating in the evaluation of the Café Guru website. Your evaluation as a customer is very important and will allow the success of the website to be determined. Please could you complete the below table following the instructions below as accurately as possible.

Please place **ONE** tick for each row of questions to indicate your choice of evaluation for that question.

Name:	Murthaza Shakeel
Signature:	*Murthaza Shakeel*

Question	Excellent	Above Average	Average	Below Average	Poor
Initial look of the website?	X				
How good is it to navigate around the site?	X				
What do you think of the colour scheme?	X				
How good was it to find the content you were looking for?	X				
Was the language clear and Understandable?	X				
How was the overall layout and design of the site?	X				
Was all the content appropriate?	X				
How was the layout of the 'My Account' page?	X				
How was the design and layout of the forms in the website?	X				
Was all inputs required made obvious from the webpage?	X				
Were the error messages informative and clear?	X				
What do you think of the booking process?	X				
How well does the graphical layout work for its purpose?	X				
What do you think of the email confirmations?	X				
What did you think of the pre-ordering of food? *(shopping cart)*	X				
The most positive thing about the site.	Easy to use and can use things easily. Colourful and layout is excellent. Excellent help to get directions to the restaurant.				
The most negative thing about the site.					
State any suggestions of improvements.					

Please return to: Mustafa Jameel, scs3mj@comp.leeds.ac.uk.

Café Guru Website Customer Evaluation Questionnaire

Thank you for participating in the evaluation of the Café Guru website. Your evaluation as a customer is very important and will allow the success of the website to be determined. Please could you complete the below table following the instructions below as accurately as possible.

Please place **ONE** tick for each row of questions to indicate your choice of evaluation for that question.

Name:	Farah Jabeen
Signature:	*Farah Jabeen*

Question	Excellent	Above Average	Average	Below Average	Poor
Initial look of the website?	x				
How good is it to navigate around the site?	x				
What do you think of the colour scheme?	x				
How good was it to find the content you were looking for?	x				
Was the language clear and Understandable?	x				
How was the overall layout and design of the site?	x				
Was all the content appropriate?	x				
How was the layout of the 'My Account' page?		x			
How was the design and layout of the forms in the website?		x			
Was all inputs required made obvious from the webpage?	x				
Were the error messages informative and clear?		x			
What do you think of the booking process?	x				
How well does the graphical layout work for its purpose?	x				
What do you think of the email confirmations?	x				
What did you think of the pre-ordering of food? *(shopping cart)*	x				
The most positive thing about the site.	Easy to navigate				
The most negative thing about the site.					
State any suggestions of improvements.	Search engine to search for a particular food				

Please return to: Mustafa Jameel, scs3mj@comp.leeds.ac.uk.

Café Guru Website Customer Evaluation Questionnaire

Thank you for participating in the evaluation of the Café Guru website. Your evaluation as a customer is very important and will allow the success of the website to be determined. Please could you complete the below table following the instructions below as accurately as possible.

Please place **ONE** tick for each row of questions to indicate your choice of evaluation for that question.

Name:	Faisal Shahid
Signature:	

Question	Excellent	Above Average	Average	Below Average	Poor
Initial look of the website?	x				
How good is it to navigate around the site?		x			
What do you think of the colour scheme?		x			
How good was it to find the content you were looking for?			x		
Was the language clear and Understandable?			x		
How was the overall layout and design of the site?	x				
Was all the content appropriate?	x				
How was the layout of the 'My Account' page?		x			
How was the design and layout of the forms in the website?			x		
Was all inputs required made obvious from the webpage?			x		
Were the error messages informative and clear?					x
What do you think of the booking process?			x		
How well does the graphical layout work for its purpose?	x				
What do you think of the email confirmations?			x		
What did you think of the pre-ordering of food? *(shopping cart)*			x		
The most positive thing about the site.	The feature giving the user the option to select which table they require is excellent. The fact it also highlights which tables are already booked is an impressive feature				
The most negative thing about the site.	Error messages are not used well. They are displayed before an error occurs.				
State any suggestions of improvements.	For the content I was expecting to see a detailed				

	description of each dish View bookings page- I wasn't sure whether these were my bookings or bookings of the whole restaurant The input for cancel booking is frustrating as I do not know my booking number without having to refer back to the bookings page The errors on the forms should only be displayed if there is an error not before. The process of booking was not obvious. The image of the tables should only be displayed after the user has entered their requirements. Otherwise the user will click the table they require before entering their requirements.

Please return to: Mustafa Jameel, scs3mj@comp.leeds.ac.uk.

Café Guru Website Customer Evaluation Questionnaire

Thank you for participating in the evaluation of the Café Guru website. Your evaluation as a customer is very important and will allow the success of the website to be determined. Please could you complete the below table following the instructions below as accurately as possible.

Please place **ONE** tick for each row of questions to indicate your choice of evaluation for that question.

Name:	Khayam Amin
Signature:	

Question	Excellent	Above Average	Average	Below Average	Poor
Initial look of the website?	X				
How good is it to navigate around the site?	X				
What do you think of the colour scheme?	X				
How good was it to find the content you were looking for?		X			
Was the language clear and Understandable?	X				
How was the overall layout and design of the site?		X			
Was all the content appropriate?	X				
How was the layout of the 'My Account' page?				X	
How was the design and layout of the forms in the website?		X			
Was all inputs required made obvious from the webpage?				X	
Were the error messages informative and clear?			x		
What do you think of the booking process?			x		
How well does the graphical layout work for its purpose?		X			
What do you think of the email confirmations?	X				
What did you think of the pre-ordering of food? *(shopping cart)*		X			
The most positive thing about the site.	Can book specific tables and the GUI				
The most negative thing about the site.	Lack of info that tells you what to do next				
State any suggestions of improvements.	*Actual size of window should have filled up the screen completely* *wicked get directions functionality, get directions should*				

	open in a new windows *need to include a key for booked/unbooked tables,* *when clicking on a table, even though a date/no of ppl attending has not been filled in, it doesn't tell u to first do that* *"Fields are empty" could have been phrased better on booking table page.* *when cancelling a booking, a list should be presented of the bookings from which a cancellation can be selected rather than the booking no manually entered* *after login, when no date entered and click on table, error message should come up* *very good layout/style* *My account page functions blend in with the background a bit too much…not very clear that after going into 1 of the functionalities, u have to click on My Account to go back to it rather than having some type of "Back to My Account" button* *good use of tables but the Date/No of people could have been more centralised.* *Also people will definitely want to book at different times than hourly such as 6.30 or 6.45 – there is no functionality to support this* *need more info so the user knows what to do instead of the user finding out via an error message e.g. need to be told to register/login before booking*

Please return to: Mustafa Jameel, scs3mj@comp.leeds.ac.uk.

Accessibility

Home Menu Location Pictures Book Opening Time Contact
Starters
Main Courses
Specialities
Side Dishes
Rice
Breads
Chicken Tikka £3.60
Marinated pieces of chicken cooked in a charcoal oven.
Fingers of Seasonal Melon £3.80
Melon arrayed with tropical fruits and berries topped with mango water ice and mango coulis.
Spiced Prawn Puree £4.70
Briskly flash fried prawns encased in a crispy deep fried pancake
Shami Kebabs £3.90
Minced lamb and lentils pate coated in egg and pan-fried.
Chicken and Sweetcorn Spring Rolls £3.60
Register Login My Account Logout
Increase Text Size in browser

Figure 8.1

Home Menu Location Pictures Book Opening Time Contact
Starters
Main Courses
Specialities
Side Dishes
Rice
Breads
Chicken Tikka £3.60
Marinated pieces of chicken cooked in a charcoal oven.
Fingers of Seasonal Melon £3.80
Melon arrayed with tropical fruits and berries topped with mango water ice and mango coulis.
Spiced Prawn Puree £4.70
Briskly flash fried prawns encased in a crispy deep
Register Login My Account Logout

Figure 8.2

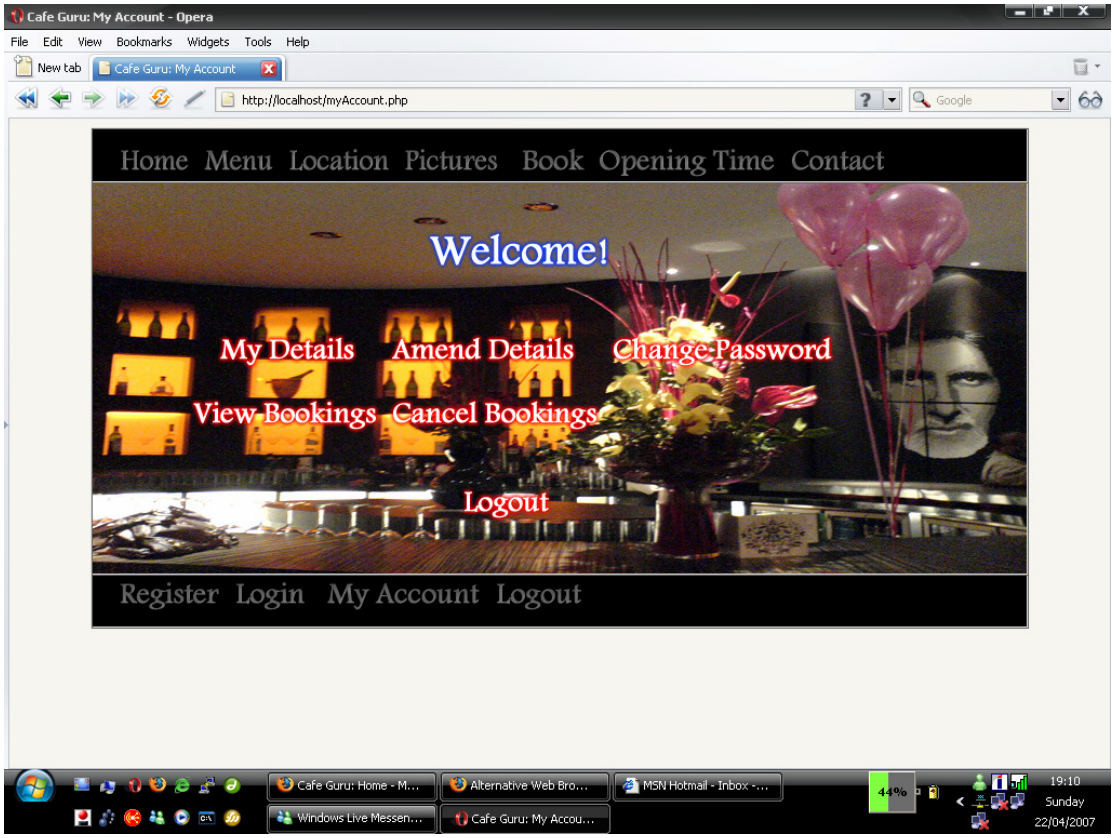


Figure 8.3

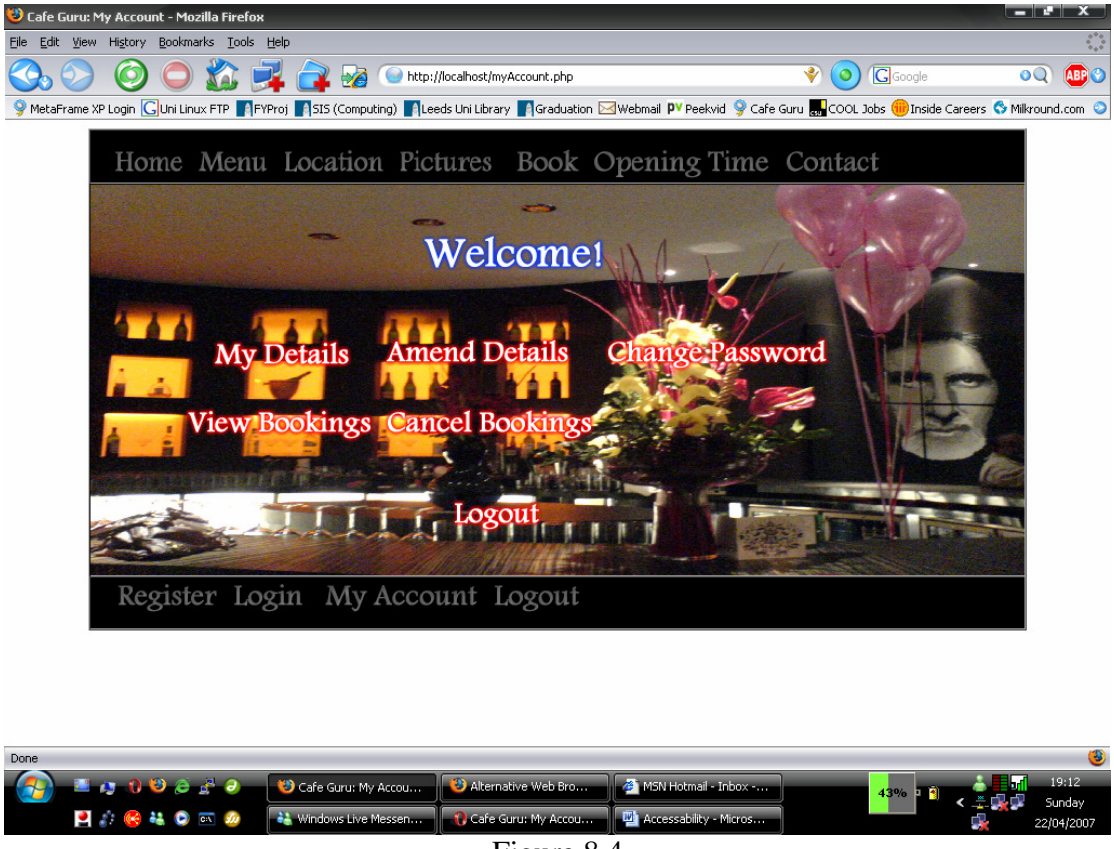


Figure 8.4

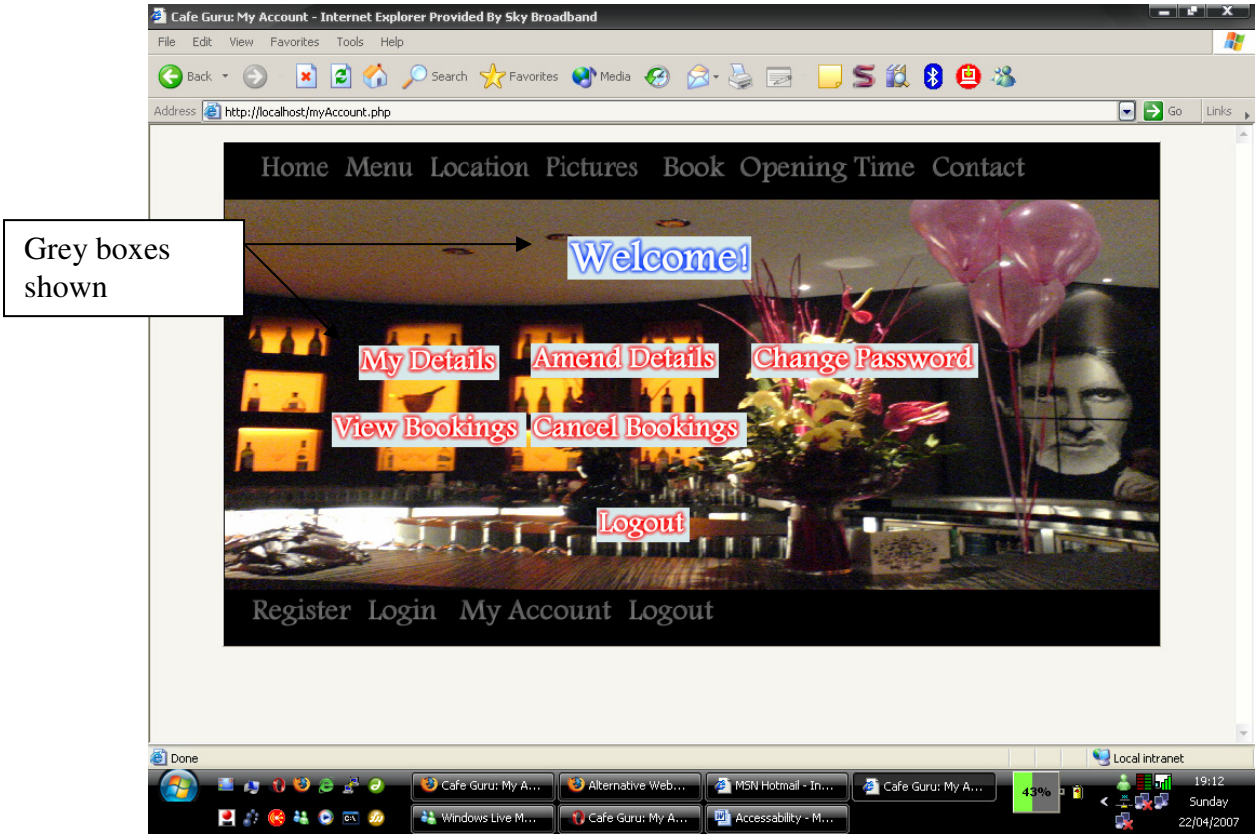


Figure 8.5

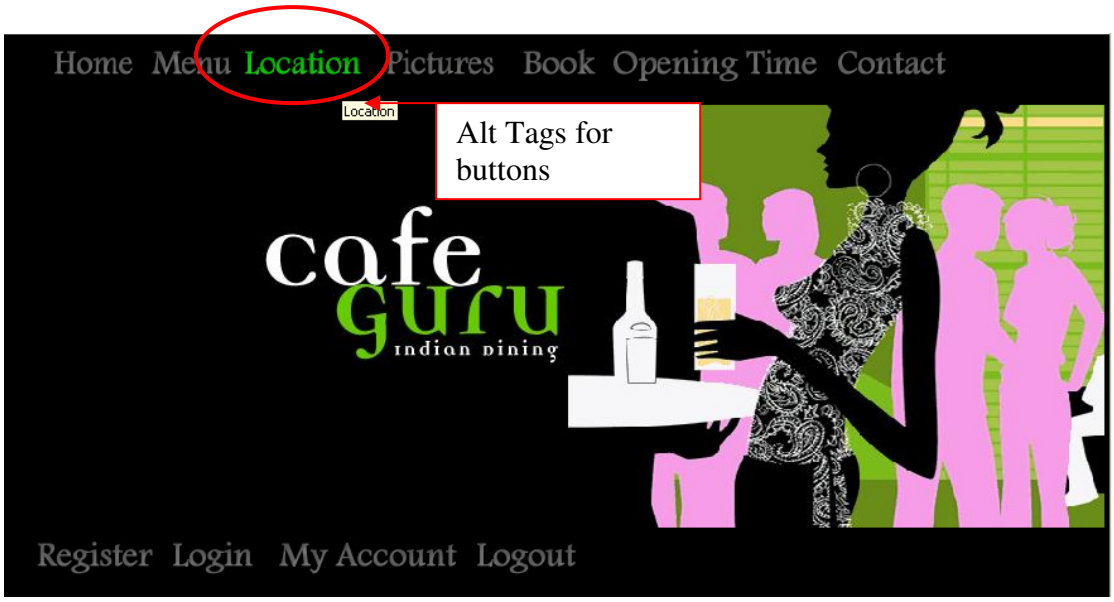


Figure 8.6

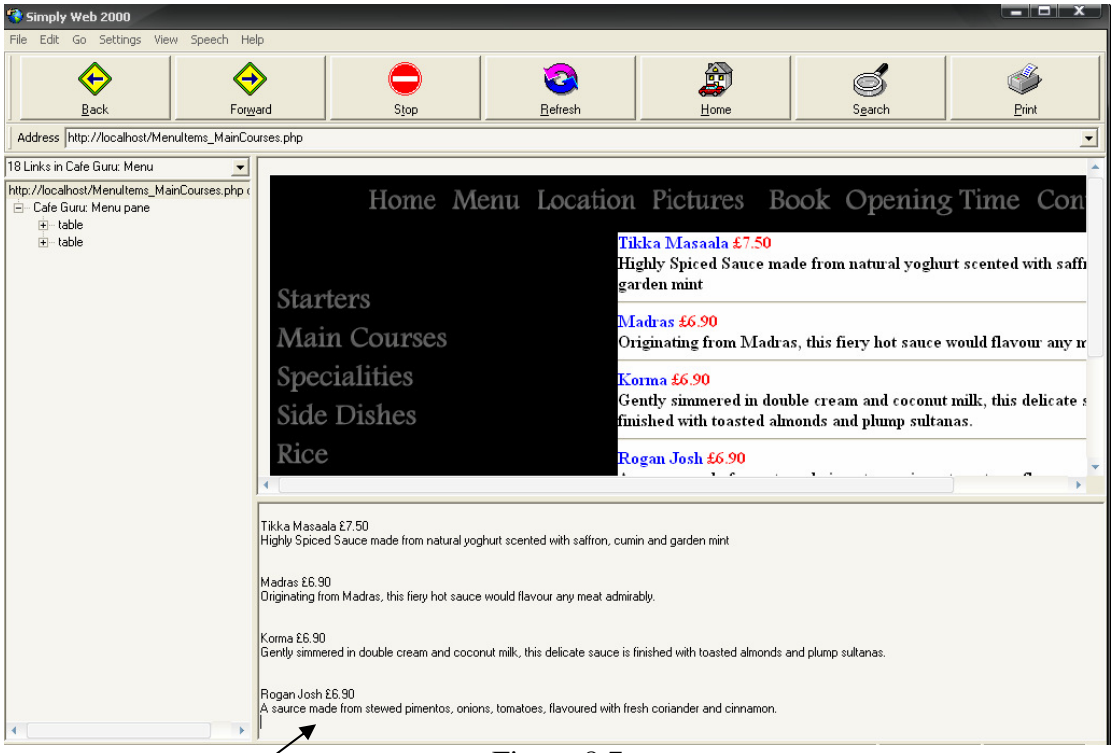
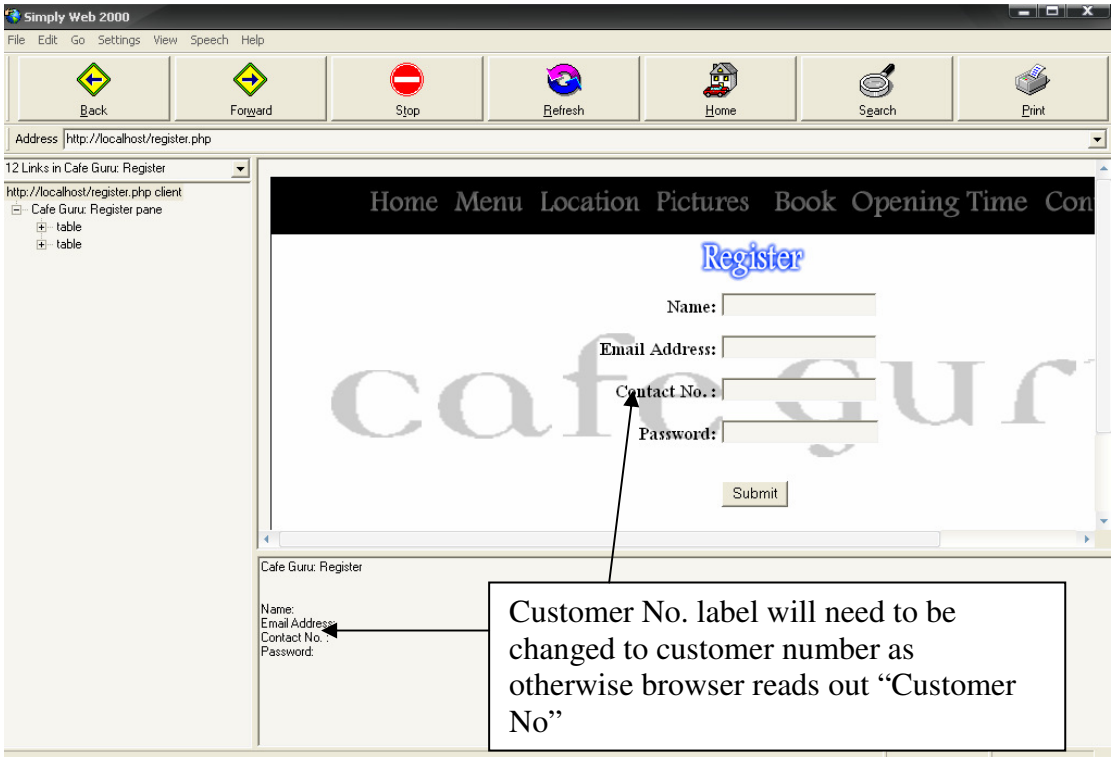

Simply Web 2000
File Edit Go Settings View Speech Help
Back
Forward
Stop
Refresh
Home
Search
Print
Address http://localhost/MenuItems_MainCourses.php
18 Links in Cafe Guru: Menu
http://localhost/MenuItems_MainCourses.php
Cafe Guru: Menu pane
table
table
Home Menu Location Pictures Book Opening Time Con
Starters
Main Courses
Specialities
Side Dishes
Rice
Tikka Masaala £7.50
Highly Spiced Sauce made from natural yoghurt scented with saffi
garden mint
Madras £6.90
Originating from Madras, this fiery hot sauce would flavour any m
Korma £6.90
Gently simmered in double cream and coconut milk, this delicate s
finished with toasted almonds and plump sultanas.
Rogan Josh £6.90
Tikka Masaala £7.50
Highly Spiced Sauce made from natural yoghurt scented with saffron, cumin and garden mint
Madras £6.90
Originating from Madras, this fiery hot sauce would flavour any meat admirably.
Korma £6.90
Gently simmered in double cream and coconut milk, this delicate sauce is finished with toasted almonds and plump sultanas.
Rogan Josh £6.90
A saurce made from stewed pimentos, onions, tomatoes, flavoured with fresh coriander and cinnamon.

Figure 8.7

Text from the page which is to be read out by browser.



Customer No. label will need to be changed to customer number as otherwise browser reads out “Customer No”

Figure 8.8

Appendix H- Letter from End User

Appendix I – User Manual

USER MANUAL

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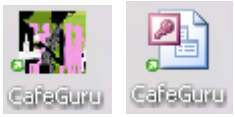
Introduction

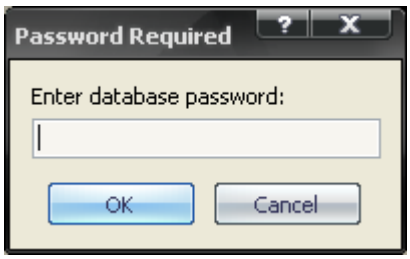
Welcome to Café Guru Information System non-technical user manual. This manual is for the database side of the information system. In this manual you will find all the information you need in order to successfully use the database system. Each task will be explained in simple easy to understand English to aid better understanding and training in the system. The manual will make use of screenshots of the system where appropriate to illustrate the task explained.

Starting the System

The application can be easily started by clicking the short cut located on the desktop.



On attempt to open the database application, you will be prompted with the following password box:

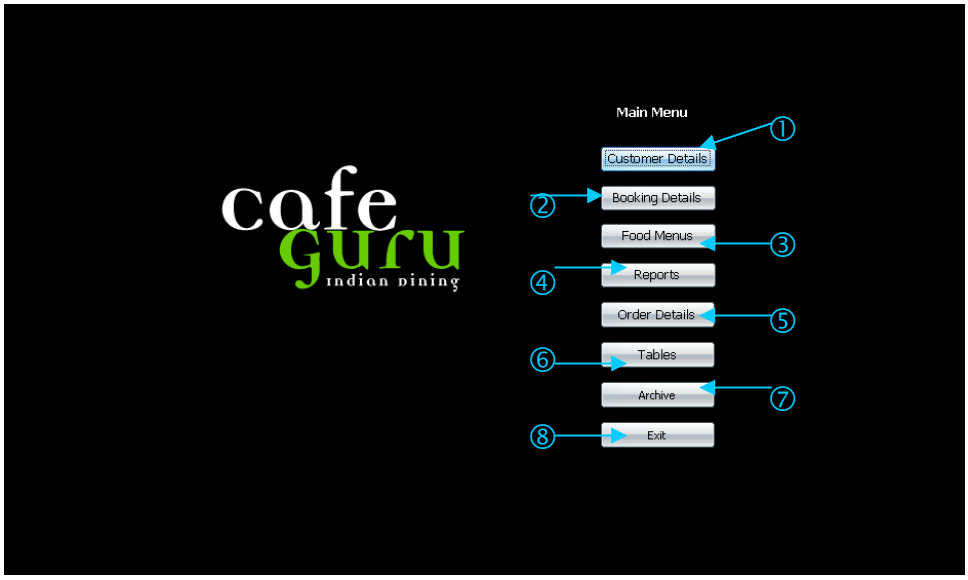


On install of the system, you would have been given a password by the developer which will need to be entered before you can access any part of the system.

On successful entry of the password you will be taken to the home page.

Navigation

Navigation throughout the system is achieved from clicking the navigation buttons displayed on all the screens.



The main menu contains all the buttons to navigate you to the all screens. The above screenshots shows the main menu.

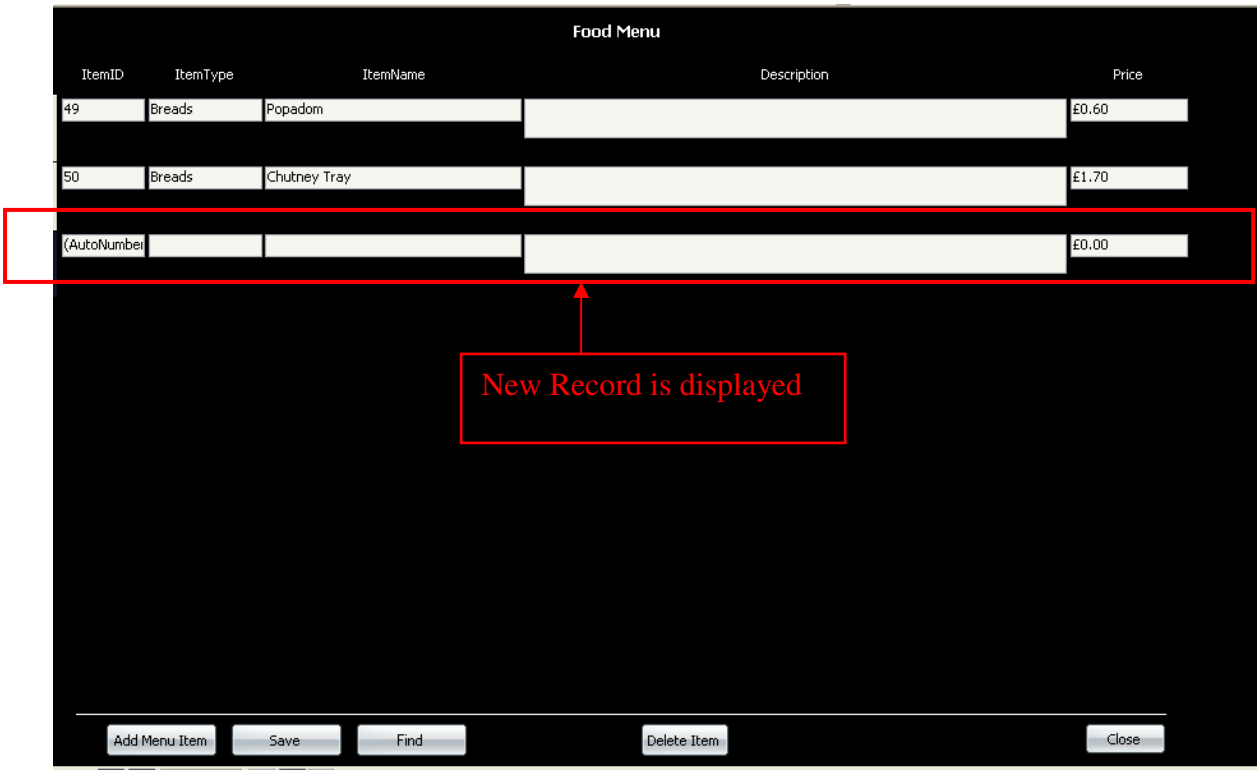
① Customer Details
② Booking Details
③ Food Menus
④ Reports
⑤ Order Details
⑥ Tables
⑦ Archive
⑧ EXIT

You will notice that most of the screen following on from the main menu apart from two Reports and Archive contain the same button options. Each of these will be explained further in other sections of the manual.

Exit/Close buttons appear on all screens to return you back to the main menu. The exit button on the main menu will exit and close the system. Only click this when you have finished performing the all tasks you wish to do on the system.

Adding a Record

Adding a new record can be done on all the screens which include the 'Add ...' button.



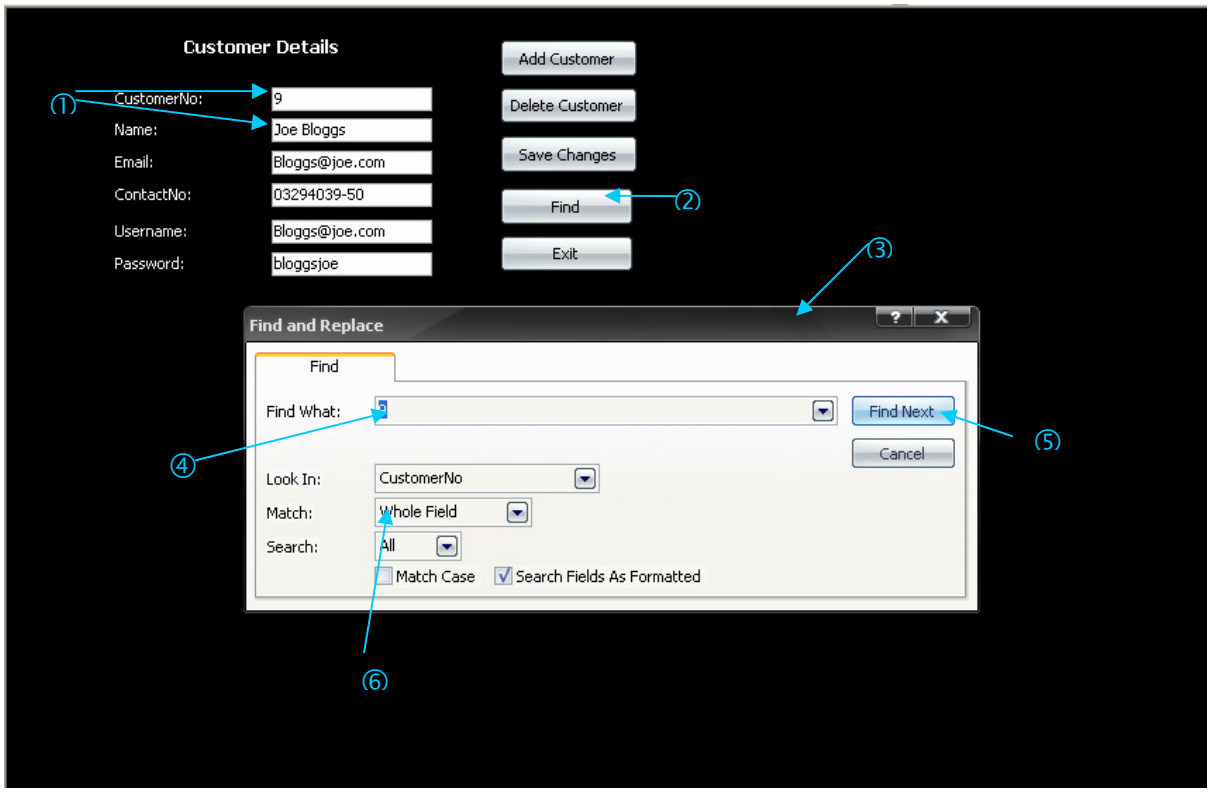
Once the button is click a new record will appear to allow you to enter the new data into the record.

Finding a Record

The 'Find' option will allow you to search for a record for the screen you are viewing by searching any of the fields.

The below example will explain how to use the find option on the Customer Details screen to perform task such as:

- Searching for Customer details by customer number
- Searching for Customer on 'First name only'



① Select Field

This is the field on which the search will be performed on.

② Click Find Button

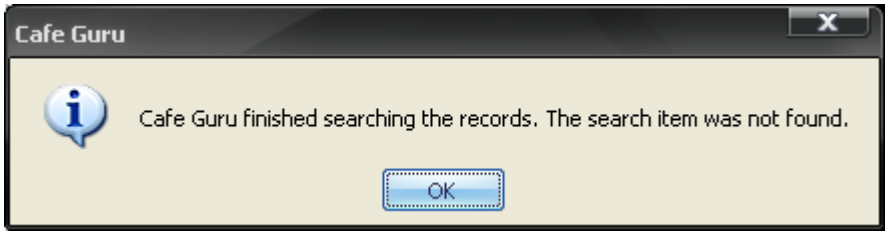
③ Find Box will Appear

A new window will appear

④ Enter Search Criteria

⑤ Find Next

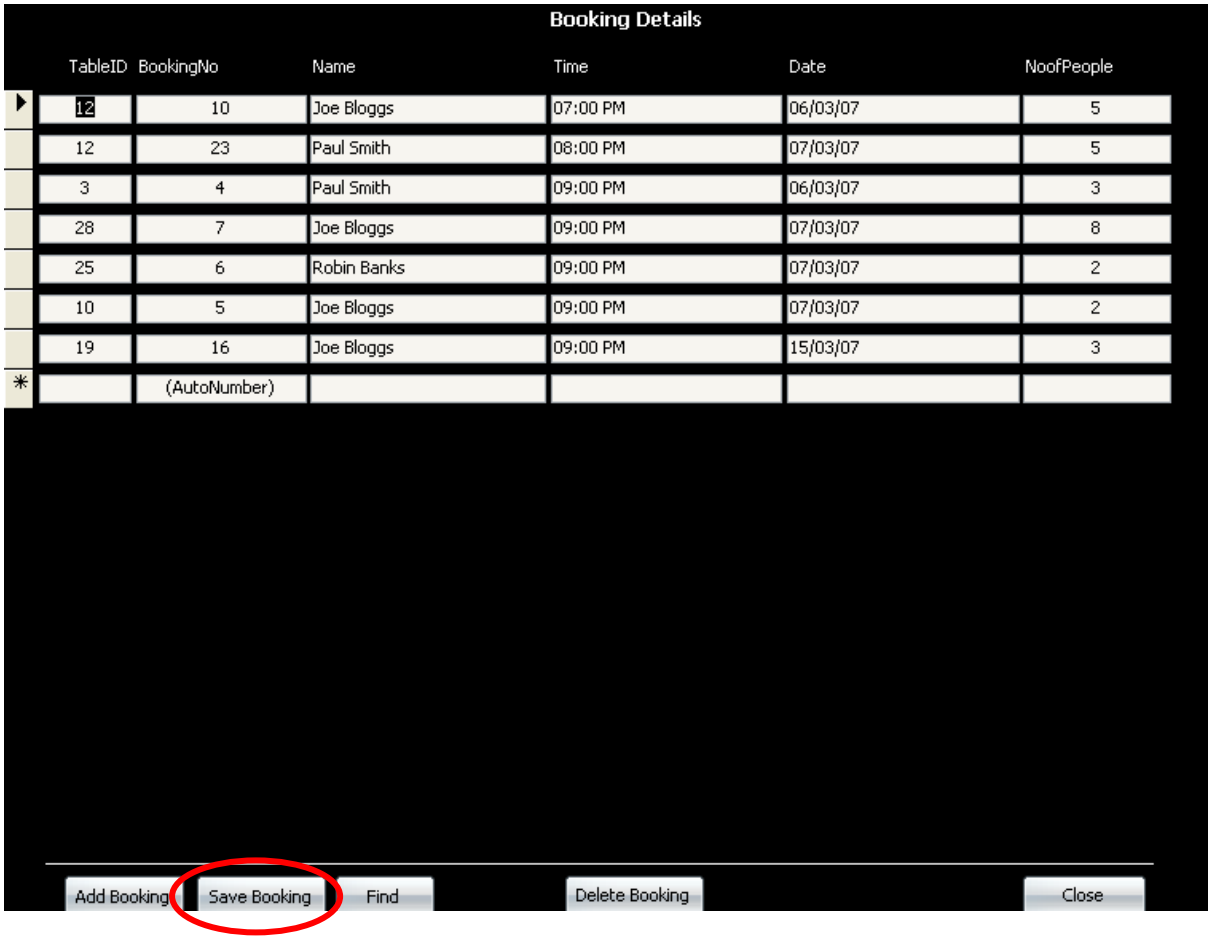
Click this button to perform the search on the database. The record will change to the first record which matches the criteria entered. If the required record was not found, click the 'Find Next' to check for further records which match the search criteria. If no record is found the following error will be shown:



To be able to search one part of the field, when the Find box appears the 'Match' field (⑥ on the screenshot above) needs to be changed. The match field offers three different choices, Whole field, Part of Field or Start of Field. This feature is practically useful for example if you wish to find a customer's record where only their surname is known.

Editing a Record

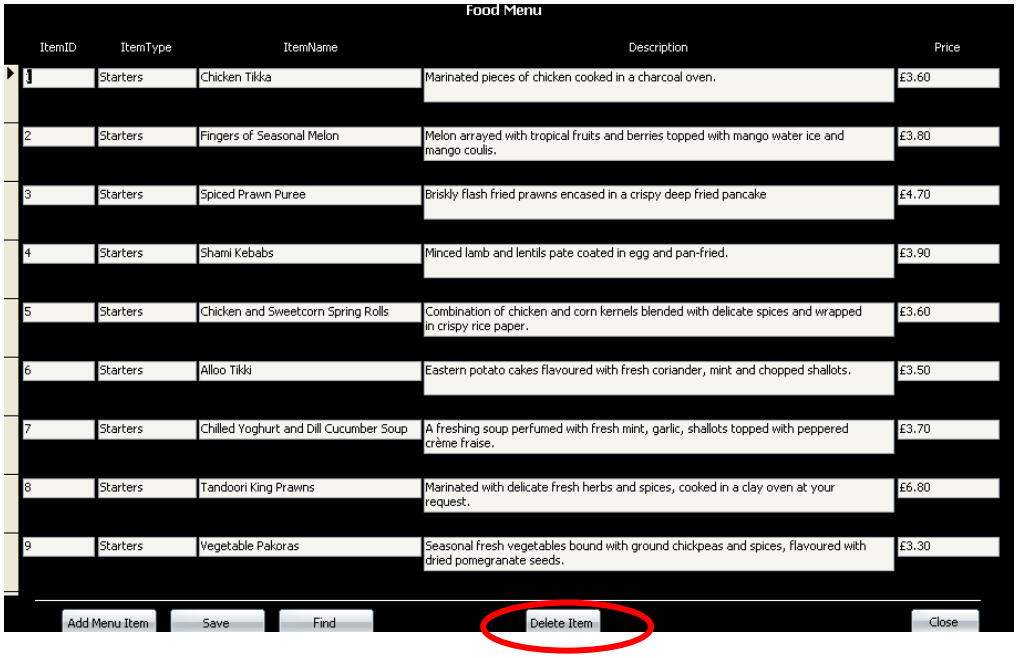
To make changes to a record, you will need to find the record which needs changing. To learn how to perform searches on the database refer back to the 'Finding a Record' sections.



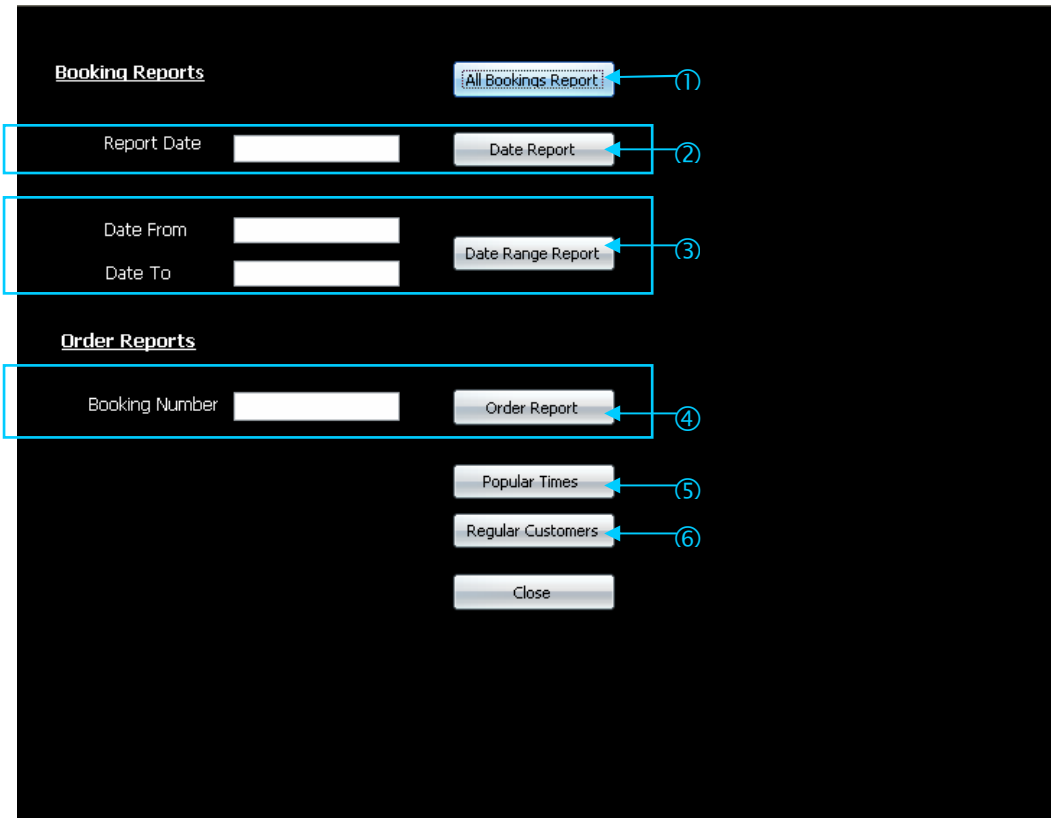
Making the changes is a very simple task, once the correct record has been found select the field which needs the change to be made. Input the changes needed then click on the button marked 'Save' which will complete the editing of the record by saving the changes made.

Deleting a Record

Deleting a record, follows a similar path to editing a record where you need to find the record you wish to delete. To learn how to perform searches on the database refer back to the 'Finding a Record' sections.

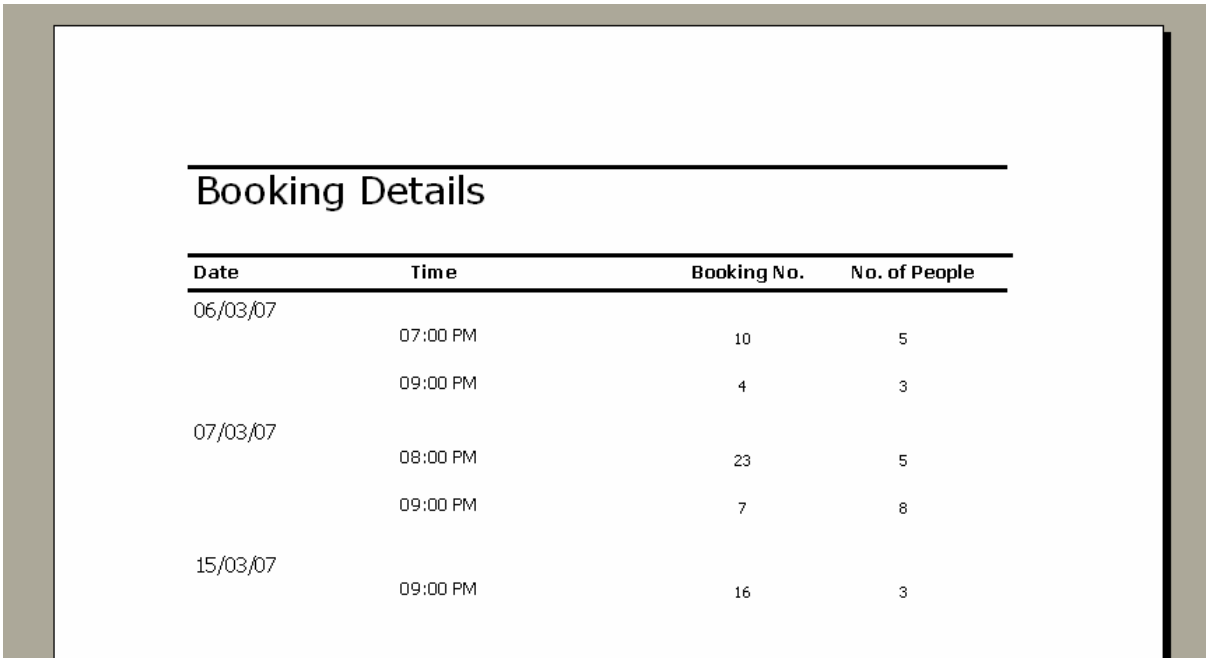

Food Menu
ItemID
ItemType
ItemName
Description
Price
1 Starters Chicken Tikka Marinated pieces of chicken cooked in a charcoal oven. £3.60
2 Starters Fingers of Seasonal Melon Melon arrayed with tropical fruits and berries topped with mango water ice and mango coulis. £3.80
3 Starters Spiced Prawn Puree Briskly flash fried prawns encased in a crispy deep fried pancake £4.70
4 Starters Shami Kebabs Minced lamb and lentils pate coated in egg and pan-fried. £3.90
5 Starters Chicken and Sweetcorn Spring Rolls Combination of chicken and corn kernels blended with delicate spices and wrapped in crispy rice paper. £3.60
6 Starters Alloo Tikki Eastern potato cakes flavoured with fresh coriander, mint and chopped shallots. £3.50
7 Starters Chilled Yoghurt and Dill Cucumber Soup A freshing soup perfumed with fresh mint, garlic, shallots topped with peppered crème fraise. £3.70
8 Starters Tandoori King Prawns Marinated with delicate fresh herbs and spices, cooked in a clay oven at your request. £6.80
9 Starters Vegetable Pakoras Seasonal fresh vegetables bound with ground chickpeas and spices, flavoured with dried pomegranate seeds. £3.30
Add Menu Item
Save
Find
Delete Item
Close

Reports



① All Bookings Report

This will produce a report showing all bookings.



Booking Details

Date	Time	Booking No.	No. of People
06/03/07			
	07:00 PM	10	5
	09:00 PM	4	3
07/03/07			
	08:00 PM	23	5
	09:00 PM	7	8
15/03/07			
	09:00 PM	16	3

② Date Report
This will produce a report to show all the booking on the date specified.

③ Date Range Report
This will produce a report to show all the booking between two given dates.

④ Order Reports
This will produce a report to show the order for a booking generating by the booking number.

⑤ Popular Times
This will produce a report to show which booking time is most popular when customers are booking a table.

⑥ Regular Customers
This will produce a report to list which customer's book tables regularly.

Archive

The Archive function will allow you to keep the database manageable by clearing some of the old data away from the new data. This will allow easier viewing of new data and more efficient searches to be preformed.

To perform the archive, two dates needs to be specified between which all the bookings are archived away.

For example, if you wanted to archive all the booking for the month of April you would enter 01/04/07 as the start date and 30/04/07 as the end date.

Printing

Printing can be preformed from any of the screens. It is preformed in the usual method by either click on the Print Icon or using the menus (File>Print).

Further Help

If additional help with using the system is need please contact:
Mustafa Jameel by emailing scs3mj@comp.leeds.ac.uk.